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ISSUE 156

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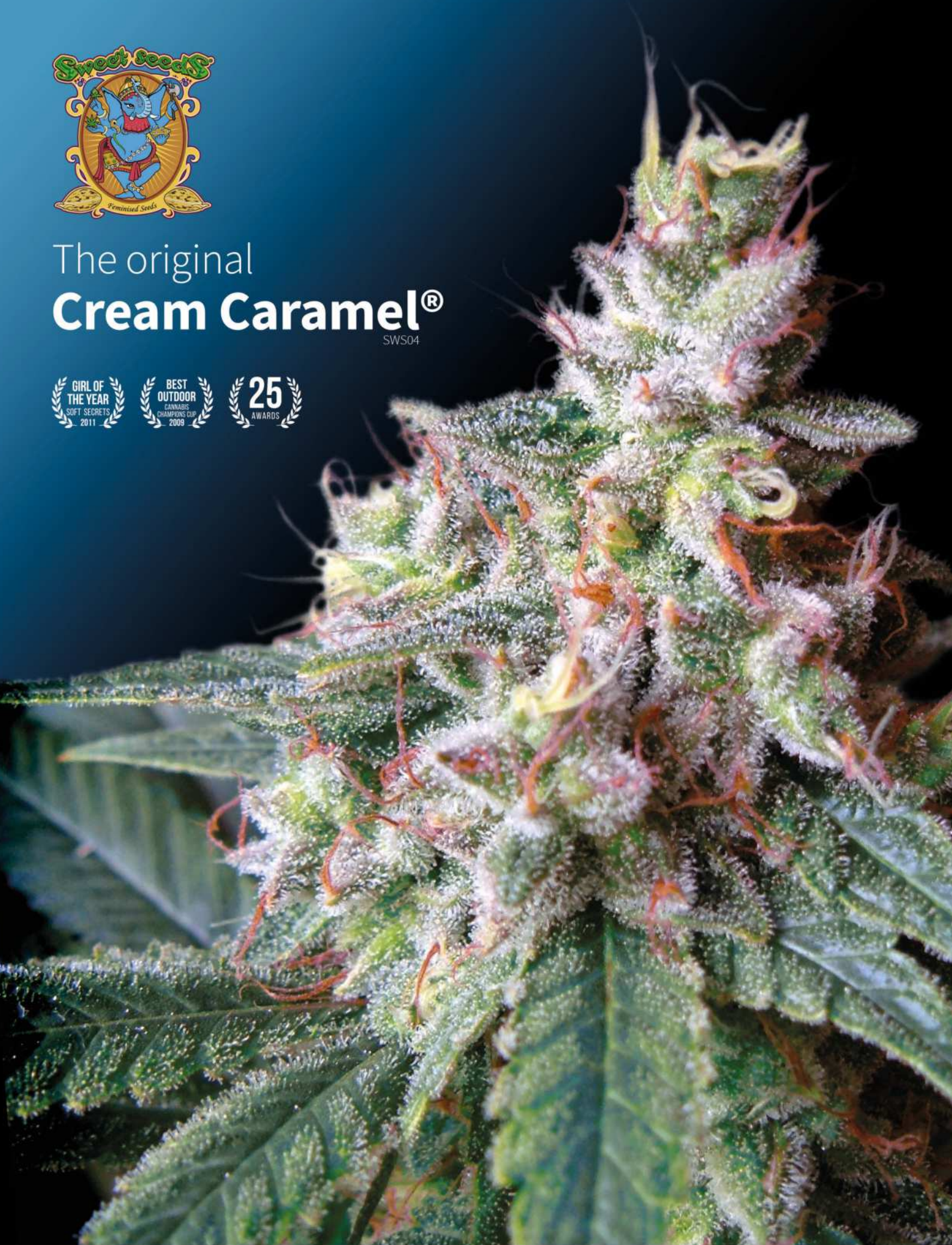
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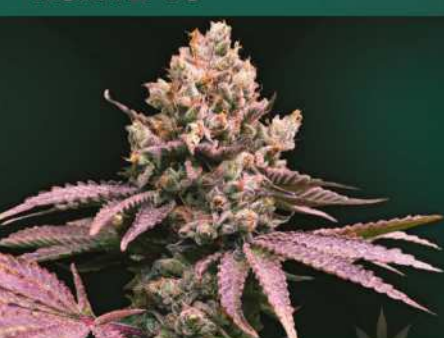
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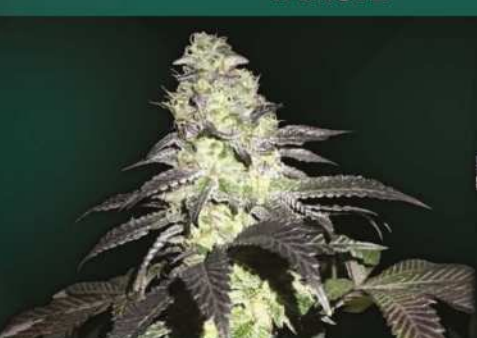
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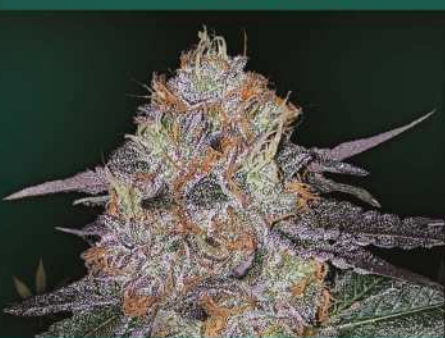
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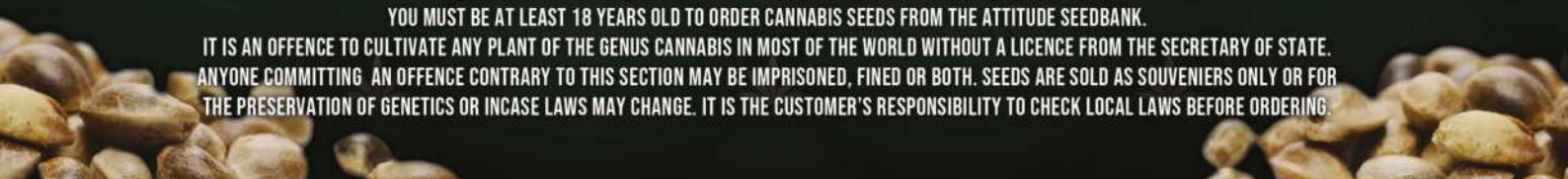
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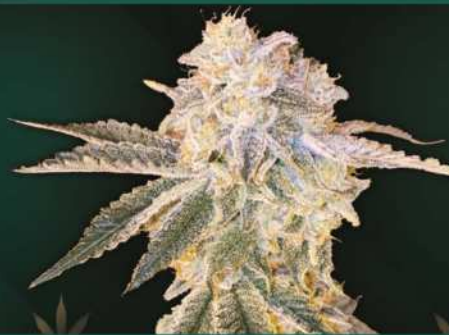


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WELCOME TO WEED WORLD

ISSUE 156

WEED WORLD was founded in 1991 and is a bi-monthly (published every 2 months) magazine. We always knew the true benefits of medical marijuana so, with this in mind, we became a fighter for the cause and a true innovator. Our job was to keep people informed about this wonderful plant and how they can medicate themselves. We are still doing that to this day! Thanks to all of our readers for supporting us over the years and to all of the people who work with us to help create this amazing magazine.

WELCOME TO ISSUE 156

Seed season is upon us. We hope you have a successful grow and a bumper crop. Don't forget we have a vast library of different strains; go to our website for more details.

This issue will deliver some exciting articles for you to peruse. Here are our choices for you: Strain stories such as "Tropicanna Banana Purely exotic: The Doc goes bananas!" by Barney's Farm & Mendo Dope "Heady O.G."

For thought-provoking take a look at "How Republicans want to legalize cannabis at the federal level in the United States" by Dario, "Will the Delta-8 Phenomenon Last," by Paul James, "Testing Patients," by PSY-23, and "Prohibition 3.0." by Simpa.

Medical wonders "Cannabis Appears Capable of Transforming Future Autism Therapies," & "Study Spearheaded by Breastcancer.org Demonstrates Cannabis' Ability to Relieve Symptoms of Deadly Disease," by Bethan Rose.

Plus, we have so much more!

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UNITED KINGDOM LAWS. By section 6 of the Misuse of Drugs Act 1971 it is an offence to cultivate any plant of the genus Cannabis in the United Kingdom without a license from the Secretary of State. Anyone committing an offence contrary to this section may be imprisoned or fined, or both. Please note therefore that germination of cannabis seeds, without an appropriate license is illegal in the United Kingdom.

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THE ITALIAN VERSION OF WEED WORLD MAGAZINE will vary slightly from the English version. It features cannabis news, laws and legalization news relevant for the Italian market.

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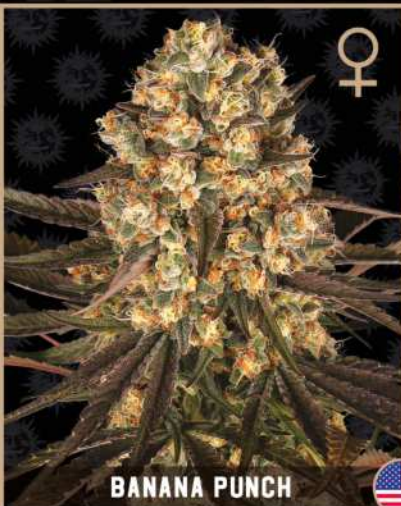


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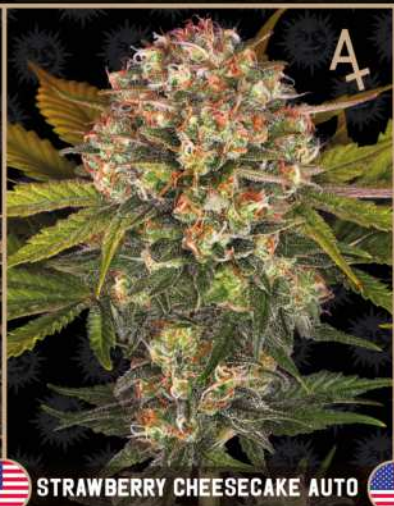
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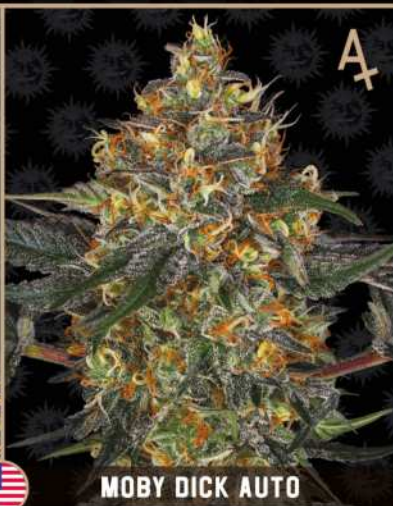
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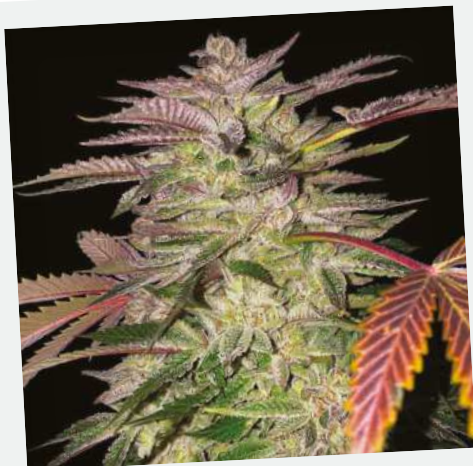
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From Black Farm Genetix

Orange Ice Cream

Black Farm Genetix's Orange Ice Cream is currently one of the most popular and effective varieties, with THC levels of up to + 22%. Orange Ice Cream was created by crossing the popular Gelato33 X Orange Punch. This strain begins to bloom on a 12/12 photoperiod and the mix of indica and sativa in this cannabis strain can best be described as indica dominant.

Seed Type: Feminized

Genetics: Gelato 33 x Orange Punch

THC: 22%

Indica/Sativa: Mostly Indica (60% Indica, 40% Sativa)

Flowering: 9-10 Weeks

Taste: Orange, gelato

Available from: weedworld.co.uk

Candyland Kush

Candyland Kush is an indica strain, bred using the original Candyland and one of Kush Cannabis Seeds' OG Kush phenotypes. The combination of these plants provides a strong sweet flavor and smell, with a very spicy yet earthy underlying taste.

A great strain for anxiety, depression, migraine, insomnia, chronic pain, and ADHD.

THC: 21% | CBD: 1%

Genetics: Candyland x OG Kush | Indica 70% Sativa 30%

Yield: High | Stature: Large

Harvest: Mid – late Sept

Available from: kushcannabisseeds.com



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With the DAVINCI MIQRO, Da Vinci have crafted a portable vaporizer to fit your lifestyle. 33% smaller than its predecessor and with a fully adjustable oven, this small vaporizer is sleek and simple.

Kit Includes: USB Charging Cable, Accessory Kit, Extended Mouthpiece, MIQRO Glove, Grinder Coin, Carry Can XL, Extra 18350 Battery and a Carrying Case.

Available in Onyx Black.

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A Sweets Seeds' XL Auto

Runtz XL Auto®

We recently had the pleasure to try a new Extra Large autoflowering strain from the Sweet Seeds® genetic collection. Coming from a Runtz genetic line (Zkittlez x Gelato), this 6th Generation autoflowering strain is notable for its delicious aroma, strong effects and high yields. The plants feature high terpene concentrations, which lends the buds their very intense, delightfully sweet and fruity bouquet. The Runtz strain is known as one of the most potent and aromatic genotypes from the West Coast of the USA.

Runtz XL Auto® (SWS88) is the resulting hybrid from the cross between a carefully selected Runtz clone and selected genetic lines of Sweet Gelato Auto® (SWS76). This strain features a short life cycle. The growers can expect just 8 weeks from the appearance of the cotyledons until harvest. The effect is powerful but relaxing at the same time, producing peaceful vibes while stimulating creativity and happy thoughts.

Available from: sweetseeds.com

Cash Crop Auto

To create this “auto money-maker” the N.L male that fathered Pretty Lights was crossed with an auto Big Bud that displayed and maintained the biggest yielding phenotype. The result is a plant that boasts gigantic, super-size yields with minimal effort. She looks a million dollars when in full flower, is easy to manage and very productive; so much so that the weight of her dense buds will need support towards cropping time.

These compact emerald-green nuggets shimmer with a golden dust, have a sweet, earthy-skunk taste and harbor a powerful cerebral high making her well worth an investment... MONEY DOES GROW ON TREES!!

Available from: weedworld.co.uk



Gigantic Yields!



From Medicann Seeds

Black Afghani Kush

Black Afghani Kush is an indica dominant marijuana strain. It's the result of crossing three amazing phenotypes that offer amazing yield and resilience. This cannabis plant is easy to cultivate and produces very dense buds with a beautiful fruity aroma. This strain is ideal for beginners as it's easy to grow and isn't susceptible to mold, you won't be disappointed by the end results.

It has an indoor grow time between 50 and 55 days, with production levels at 450 gr/m² indoor 600 gr/m² outdoor. Outdoor harvest times are mid-October in the North/hemisphere late September and in the South/hemisphere late March to early April, THC at 22% and CBD 4-5% at means this strain can be used to help with: depression, stress, insomnia, muscle spasms, pain, fibromyalgia, eating disorders, asthma.

Available from: medicannseeds.com



From B-S-B Genetics

Bruce Banner Auto

Auto Bruce Banner #3 is an automatic flowering ruderalis/indica/sativa variety from B-S-B Genetics and can be cultivated indoors and outdoors where the female, autoflowering plants need ± 56 days from the seedling to the harvest. B-S-B Genetics' Auto Bruce Banner #3 is/was only available as feminized seeds.

Genetics: Bruce Banner #3 x Ruderalis

Harvest: 7-9 weeks from germination

Yield: 550+ gm²

90% Sativa / 10% Indica

THC: 23-28%

Available from: weedworld.co.uk

Organic CBD Balm

60g Organic topical full spectrum balm contains 1000+mg CBD per jar.

This balm is a herbal product containing CBD, Arnica, Aloe Vera, Comfrey, Chamomile, Calendula, Eucalyptus, Peppermint oil, Fulvic Acid, Beeswax and Shea butter. It is used to relax and sooth externally, based on traditional use only. Full-spectrum CBD is full of essential vitamins, minerals, protein, chlorophyll, fibre, terpenes, cannabinoids, flavonoids, and polyunsaturated fatty acids such as high levels of Omega 3, 6 and 9 (3:1 ratio) found in hemp, all of which have therapeutic value of their own and help create what's know as the entourage effect.

Rub into affected area. It is oil-based so it absorbs quicker into the skin. Use a small amount, 3-4 times a day.

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The bag features two main pockets with a hidden secret pocket inside for your valuable or personal items. The Mini Crossbody has a carabiner clip inside so you can attach your keys, and the adjustable strap is fully removable to create a pouch that can be slipped inside a larger rucksack or overnight bag.

A stylish and versatile hemp bag that is suitable for most occasions.

Available from: weedworld.co.uk



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MyCBD Product Range

MyCBD company maintains the properties of the terpenes, flavonoids and cannabinoids in their products, which cannot be found in isolated or broad spectrum products. MyCBD offers a range of creams for face and body that will leave skin feeling fresh, smooth and moisturised. The creams work perfectly to calm irritated skin and relieve muscle pain.

The new range of MyCBD cosmetics includes soothing face cream and anti-acne cream that helps with skin imperfections and has a great effect on eczema and redness of the skin due to the creams natural formula and added CBD. Muscle Relief CBD Gels are available in cooling and warming forms and are ideal after physical activity to relieve muscle pain and to increase microcirculation for a faster recovery.

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Crafty Portable Vaporizer

The CRAFTY's compact construction with a single Lithium-Ion Battery Power is complemented by a practical one button control: You turn on the CRAFTY with only one keypress. It then heats up automatically until it reaches the default set basic temperature of 356°F (180°C). With a double-click on the button, you activate the booster temperature of 83°F (19°C). When the set vaporization temperature is reached, it is signaled through a short double-vibration and the LED-indicator lamp.

With the CRAFTY, vaporization functions on the basis of a full hot air convection heating combined with conduction. The convection heating provides an immediate and continuous vaporization, whereas the conduction ensures that there is vapor created from the very first breath. The CRAFTY is the smallest STORZ & BICKEL Vaporizer with a size of 4.3 x 2.2 x 1.3 inches (11.0 x 5.7 x 3.3 cm) and a weight of 0.3 lbs (135 g).

Available from: weedworld.co.uk



Vaping on the Go



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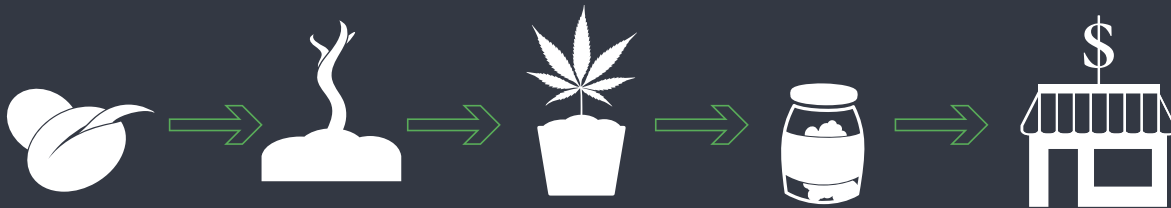
Morning Star

Morning Star is a high-quality CBD strain with very low THC. It produces uniform yields, is extremely stable and has high pathogen resistance. Morning Star has been 5 years in the making, utilizing a wild hemp variety, chosen because it is both very vigorous and disease resistant. The CBD varietal was chosen from a selection method using thousands of plants. The entire breeding process to establish the stable genetics was performed in climate-controlled conditions with no risk of cross pollination.

Under optimum conditions, Morning Star reaches 17% CBD and 0.2% total THC and, if grown correctly in perfect conditions, can achieve a yield of 5kg of dried trimmed flower. The strain produces a beautiful citrus aroma and very compact, hard buds which are impossible to distinguish from an indoor grown THC varietal. Perfect smokable CBD flower, compliant with THC levels.

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THE GREATER GOOD

By Psy-23



In light of the ever-changing global cannabis landscape, it seems increasingly likely that we are slowly-but-surely moving towards a point where legalization potentially becomes the norm for many of more nations. I'm not saying that this will be a sudden seismic shift, but rather that the clear economic, social and healthcare benefits that come from a change of perception which ultimately leads to a change in law will eventually become too much to ignore. While some sectors of the world are much further ahead than others, the seeds of change seem to be taking root around the world and as people become increasingly vocal in their support of significant change it seems like officials are gradually starting to listen.

While the myriad health benefits of cannabis consumption continue to make waves around the world, the limitations placed on scientific research by various agencies who seek to control harmful substances mean that man-made limitations are probably still our biggest opponent. Despite the fact that history has shown that we should live in harmony with our natural world and harness the potential of plants to improve our health and wellbeing, many countries have systems in place that favor pharmaceuticals over naturally-occurring substances and laws that prohibit the individual from making use of many of nature's bounties. To make matters worse, there is a huge disparity when it comes to law enforcement and the impact it has on ethnic minorities which has been ignored for far too long.

What this means is that any form of reform around the world should consider the negative impact that prohibition has had on society and take steps to ensure that our transition to a more contemporary view on cannabis attempts to atone for the errors of the past. In light of this, some people have already voiced their concerns that the cannabis industry may be 'hijacked' by corporations who have little interest beyond their profit margins, especially as there are always likely to be some companies who will aim to influence policy for their own benefit.

The social impact of the past century of prohibition is difficult to fully comprehend, but estimates indicate that more than 8 million people were incarcerated in the United States between 2001 and 2010 (with almost 90% of them arrested for simple possession). To make matters worse, figures indicate that minorities (African Americans in particular) are almost four times as likely to find themselves arrested for possession than Caucasians, regardless of the fact that it is estimated that there is a level of equality in terms of cannabis use across all ethnicities. When it comes to possession with intent to supply (felony possession) this actually increases to almost five times the number of arrests in comparison to the equivalent number of arrests for white people. Sadly, this is not an issue that is exclusive to the United States and studies in Canada and the United Kingdom highlighted similarly shocking disparities when it comes to arrest data and subsequent time spent in incarceration.

As we move forward and hopefully see improvements across the board in terms of how cannabis is perceived and policed, some organizations are calling for 'social equity'

to be included as part of any change to legislation. The idea that reform should be built upon the foundations of principles relating to social justice is becoming increasingly popular and you would hope that this is almost a given in the current political climate (and in light of the increased focus on such issues in the past few years). In New York, where more than 90% of arrests and incarceration have previously been attributed to African Americans, there has been a clear focus on ensuring that the impending wave of cannabis-related businesses that are likely to spring up now that legalization is being ushered in is more equitable and aims to provide opportunities to those communities who have previously been adversely affected to a greater extent. By working towards establishing more of a level playing field for individuals who are trying to compete with established brands and multi-million-dollar corporations, there is a hope that some of the damage of the past can be undone. Add in the fact that some states are now actively expunging criminal records and releasing people who were incarcerated for minor possession charges and it's clear that there is at least some hope for the future.

Conversely, the government in the UK has continued to argue that there needs to be a tough stance when it comes to 'drugs' and their new policies continue to perpetuate the same old dialogue. This is regardless of the fact that their own sources indicate that the public money spent on enforcing drug laws and policies has had no impact on levels of drug use (in fact issues related to drugs are increasing in many areas of the UK). According to a report by Release (a national center of expertise on drugs and drug law) it is 'inevitable' that change is coming to the United Kingdom. They go on to explain that the market is 'simply too lucrative for politicians to ignore' as cannabis is 'the most widely used illicit drug in the UK and the world', but they are adamant that any future changes should take into account that this 'renaissance of cannabis is a vital opportunity to address the harm that cannabis prohibition has caused to Black and Brown communities and to people with lived experience of cannabis policing.' Some of the points they go on to raise include the idea that people should not be persecuted for possession (regardless of how they came to obtain it through legal or illegal channels), non-commercial growing should be allowed in the same way that an individual can set up a 'home brew' to make their own alcohol at home, previous convictions must be expunged from people's criminal records and those who have previously been punished for involvement in cannabis-related activities should be given an equal opportunity to work within this new industry.

In an ideal world we would see these types of policies coming to light that give the individual more freedom to choose how they maintain a supply of cannabis which suits their personal preference. While some people are more than happy to buy their strains from dispensaries, the chance to grow independently or as part of a collective will be preferential to others. Whatever the future may hold it's clear that change is beginning to take shape. Ultimately, however, this is all about seeing progress and remaining hopeful that this is the just the beginning of a new era for cannabis around the world that can heal many of the wounds of the past.

Sources:
<http://release.org.uk> (initially linked through ekkklesia.co.uk)
<http://norml.org>

A vibrant cartoon illustration depicting a prehistoric forest scene. Two cavemen, one with a blue headband and the other with a large rock on his head, are running joyfully through a lush green landscape. The ground is littered with modern electronic waste, including mobile phones, a laptop, a camera, and a power drill. In the background, there are rolling orange mountains, a large green tree, and various animals: a white rabbit, a deer, a bear, and an owl perched on a branch. The sky is a warm yellow-orange color with a few birds flying. The text 'Why not?' is written in a large, bold, white font in the top left corner. In the bottom right corner, there is a red triangular warning sign with a black question mark inside.



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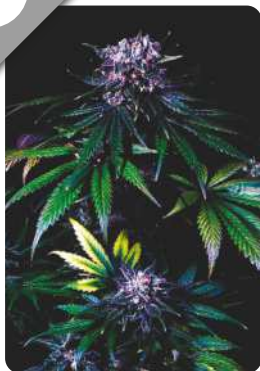


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CBD SHRINKS TUMOR





Daily CBD Oil Consumption Over 2-Year Period Led to Elderly Woman's Tumor Shrinkage

By Bethan Bee Rose

BMJ Case Reports, a global pioneer in case report publication, has released the findings of a case study reaffirming CBD's tumor-fighting abilities. CBD, or 'cannabidiol' in its unabbreviated form, is the cannabis plant's primary non-psychoactive constituent.

This recently published investigation demonstrated the impressive shrinkage of an elderly female lung cancer sufferer's tumor. According to the unnamed woman, she successfully treats her tumor without chemotherapy, surgery, and radiation.

Lung cancer remains the second most common cancer in the United Kingdom. Despite treatment advancement, survival rates remain low at around 15% five years post-diagnosis, and the average survival without treatment is approximately seven months.

Past studies, such as one titled "Cannabidiol (CBD) as a Promising Anti-Cancer Drug", have also shot this therapeutic cannabinoid into the limelight for its cancer-fighting properties.

Another one, "Cannabidiol induces programmed cell death in breast cancer cells by coordinating the cross-talk between apoptosis and autophagy," outlined how CBD can cause apoptosis (cell death) in cancer cells.

Cancer Patient in Her 80s Consumed CBD Oil Twice Daily

Tobacco is the likely culprit for the cancer patient's disease. Over a two-and-a-half-year period, the older woman – who chuffed 68 packs of cigarettes every single year – self-medicated using CBD oil. She decided to use CBD after being diagnosed with non-small cell lung cancer.

Endocannabinoids are found inside the human body, which manages energy metabolism, immune function, pain and inflammation, sleep, emotion, and overall function. This suggests that cannabinoids may have an essential role in fighting cancer, among other medical conditions and diseases.

Cancer Research U.K. even talks about cannabinoids for cancer on its website, stating that certain types of cannabinoids can prompt apoptosis — a term used to describe the process of programmed cell death. Aside from causing cell death, cannabinoids may obstruct cancer cell growth, produce anti-inflammatory effects, and halt blood vessel development required by tumors for maturation. It's important to note that previous research exploring the impacts that cannabinoids have on cancer patients is

"Patients who use alternative and traditional cancer treatments have reported spontaneous cancer regression."

mixed. Plus, there's no obvious evidence from this study that CBD oil was responsible for reducing the woman's cancerous tumor size. Nonetheless, many cancer doctors advise using cannabinoids as an aid to conventional methods of treatment.

Lung Cancer is a Regressive and Often Fatal Illness

Lung cancer is the leading global cause of cancer deaths. Some of the most common symptoms associated with lung cancer include shortness of breath, chest pain, persistent cough, coughing up blood, vocal hoarseness, bone pain/discomfort, and unintended weight loss.

Dr. Osita Onugha, an associate professor of thoracic surgery at Saint John's Cancer Institute at Providence Saint John's Health Centre in Santa Monica, California, says that the body can successfully obliterate some types of cancer.

"That patient needs to be studied in general because there's probably something about her immune system that allowed her to decrease and potentially eradicate cancer effectively," the thoracic surgeon said in response to the elderly CBD consumer's claims.

Onugha believes that this knowledge will open a window of opportunity for scientists further to decode the immune system and its cancer-killing potential when combined with other substances, including cannabis.

Based on a 2010 study, titled "Spontaneous Regression of Malignant Tumors: Importance of the Immune System and Other Factors," cancer tumor regression is usually associated with apoptosis, immune system activity, and conditions in the tumor microenvironment. With that being said, it's understandable that cannabis could play a role in shrinking tumors by tweaking the tumor microenvironment and bolstering immune system activity.

Patients who use alternative and traditional cancer treatments have reported spontaneous cancer regression. For example, a situation may arise in which a tumor loses blood and, consequently, struggles with nutrient supply, thus preventing it from thriving and surviving.

Understanding the Connection Between CBD and Cancer

The report's authors conjecture that there may be a positive connection between CBD oil consumption and tumor regression. Nonetheless, to fully understand CBD's anti-cancer effect, we must agree that additional research is needed.

Scientists are becoming increasingly intrigued in CBD, notably since the U.S. Drug Enforcement Administration's (DEA) recently supported a White House plan to streamline cannabis-focused research initiatives.

Cannabinoids can correspond to and work alongside specific signaling pathways found in cells, such as cancer

cells. A report by the Open Access Government showed that CBD might even hinder the growth of specific cancers that impact chronic inflammation throughout the body.

On the other hand, according to a radiation oncologist and professor of therapeutic radiology at Yale School of Medicine in Connecticut, Dr. James B. Yu, the improvement in this cancer patient's condition does not necessarily mean that she required less intense treatment. Ultimately, she may have faced a greater likelihood of morbidity and death, he says.

Conclusion

Cannabis is by no means a new treatment for people living with cancer, but the proof of its diverse therapeutic power cannot be ignored. As a medical condition that's tough to diagnose and treat, a growing number of patients want to try CBD oil. And why not?

Reports have shown that cannabinoids may be helpful for nausea, vomiting, anorexia, neuropathy, anxiety, depression, and insomnia.

Synthetic cannabinoids, such as Dronabinol, have been approved for use among patients with chemotherapy-induced nausea and vomiting. However, cannabinoid-based therapies have not outshone conventional anti-nausea medications.

After wading through the research, Onugha is dubious and believes that more case studies would have sprouted out of the science field by now if CBD's anti-cancer potential was that strong.

"I advise caution to patients wanting to try any of these until they can be thoroughly tested in trials," Johnson warned readers. "If you want to treat something very difficult to treat in some cases, do everything possible; don't just choose one."

Onugha says that intrigued patients should give cannabis a try. However, they should also take the time to consult with a medical team and first sample the CBD oil that is being recommended in combination with treatments like chemotherapy, radiation, and surgery

"The main takeaway is that you cannot base cancer therapy on a single report of a single patient. There are case reports of spontaneous regression of lung cancer without therapy, as well as misdiagnosis of lung cancer that turned out to be non-malignant," she concluded.

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SOUTH AFRICA

Why Mike Tyson is Wanted as Malawi's Cannabis Ambassador

By Ray Mwareya

Malawi, the southeast African nation that legalized cannabis in 2020, has wasted no time recruiting Mike Tyson, the celebrated heavyweight boxing champion, as a brand ambassador for its weed.

There are urgent reasons why Malawi is desperately luring Mr. Tyson to endorse her cannabis. Tobacco, which is Malawi's chief money earner, is in peril. Secondly, Malawi's neighbors have galloped ahead of her in luring foreign dollars to their cannabis economies.

On 1 November 2021, Malawi's agriculture ministry wrote a plea to Mike Tyson, groveling that the former boxer becomes the marketing face of Malawi's cannabis. "Despite (cannabis) perceived benefits, Malawi may not go it alone as the industry is complex and requires complex collaboration. I would therefore like to appoint you, Mr. Mike Tyson, as Malawi's Cannabis Brand Ambassador," pleaded Mr. Lobin Clarke Lowe, who is Malawi's agriculture minister.

Mike Tyson, one of the boxing greats of all time, is a prominent cannabis advocate in the US. He declares that he'll use weed "for life" and recently launched Tyson 2:0, his cannabis product line.

However, it is unclear whether Mike Tyson has taken up Malawi's generous offer. But Malawi is banking its hopes on cannabis because it has very few other options. One of the world's poorest nations, Malawi has virtually no other minerals to dig and sell, unlike its resource-rich neighbors. Its flagship income earner is tobacco. Alarmingly, Malawi is the most tobacco-dependent country in the world. 40% of its exports and 60% of its foreign currency earnings come from cultivating green leaf tobacco for shipping abroad. Yet tobacco in Malawi is a declining prospect. It impoverishes farmers because large corporate cartels collude to fix prices such that farmers in Malawi earn just \$79 per acre, unlike \$351 elsewhere.

"Tobacco in Malawi is seen as the hard labor crop that keeps farmers and the country busy but poor. Cannabis is a newly legalized crop and a massive chance for Malawi to earn better. Due to cannabis-heavy licensing rules, Malawi feels it can keep ruinous cartels at bay. Hence the rather short overtures to likes of Mike Tyson to push Malawi's cannabis in front of the world," says Deogracias Kalima, an independent consultant who has written on green sustainability in Malawi for the UN Food and Agriculture Organization.

Secondly, Malawi's appeal to Mike Tyson to be the face of her cannabis is born out of the realization that neighboring countries have moved fast ahead of Malawi in cannabis legalization, cultivation, and export. For example, Lesotho, a country near Malawi, has become Africa's cannabis star child – being the first country on the continent to legalize weed, launching Africa's first contract-cultivation scheme, and grabbing Africa's first medical cannabis export license to the EU.

"Malawi has panicked," explains Kalima, the green consultant. "Lesotho nearby has a population that's just a tenth of Malawi's yet is rolling in cannabis cultivators, sophisticated machinery, and re-exporters fast from afar as Canada. Malawi is fearful that neighbor countries could gobble the cannabis market ahead of her – hence the swift appeal to Mike Tyson to headline Malawi's cannabis."

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NEW
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Characteristics and Potential for Use in Food Production

Cannabinoids

STUDY

By J. M. Borst, T. W. Costantini, L. Reilly, A. M. Smith, R. Stabley,
J. Steele, D. Wintz, V. Bansal, W. L. Biffl, L. N. Godat

Scientific demonstrations of the beneficial effects of non-psychoactive cannabinoids on the human body have increased the interest in foods containing hemp components. This review systematizes the latest discoveries relating to the characteristics of cannabinoids from *Cannabis sativa* L. var. *sativa*, it also presents a characterization of the mentioned plant.

In this review, we present data on the opportunities and limitations of cannabinoids in food production. This article systematizes the data on the legal aspects, mainly the limits of $\Delta 9$ -THC in food, the most popular analytical techniques (LC-MS and GC-MS) applied to assay cannabinoids in finished products, and the available data on the stability of cannabinoids during heating, storage, and access to light and oxygen. This may constitute a major challenge to their common use in food processing, as well as the potential formation of undesirable degradation products. Hemp-containing foods have great potential to become commercially popular among functional foods, provided that our understanding of cannabinoid stability in different food matrices and cannabinoid interactions with particular food ingredients are expanded. There remains a need for more data on the effects of technological processes and storage on cannabinoid degradation.

Conclusion

Cannabis sativa L. is gaining popularity for its biological properties, which are primarily associated with both psychoactive and non-psychoactive cannabinoids. Hemp seeds and their oils are also recognized for their high nutritional and health-promoting properties. Current knowledge on *Cannabis sativa* L. var. *sativa* is very broad and allows for its accurate characterization. The constantly increasing interest in hemp and its compounds has led to human health safety concerns associated with the use of dietary supplements, dried hemp, and foods containing cannabinoids. Over the past decade, many studies on the properties of cannabinoids have opened up new

possibilities for using them, other than $\Delta 9$ -THC and CBD, in addressing multiple human health problems. Although our knowledge of the effects of the main cannabinoids (CBD, $\Delta 9$ -THC, and CBG) on the human body is very broad, there is still insufficient information about the bioactivity of the lower concentrations of cannabinoids that are formed through the transformations of the main cannabinoids. Expanding this knowledge will allow for a wider use of this broad group of compounds in food production, potentially for functional foods. Based on the available knowledge, it is not possible to choose a clear-cut technique for quantifying cannabinoids in all matrices. Depending on

the product, it is necessary to adjust the methods to the matrix in which the compounds of interest are present. There are numerous discrepancies in the quantifications of cannabinoids in inflorescences and hemp oils, likely caused by environmental conditions and the plant developmental stage. Similar correlations have been observed in studies on food. Depending on the *Cannabis sativa* L. var. *sativa* plant part, hemp oil, or extract, there are significant differences in final concentrations of cannabinoids in finished food products. Our current knowledge on cannabinoid stability during heating or storage under different conditions is not sufficient to determine the level of degradation of these compounds. There is a lack of information on the effects of food matrix

ingredients and the effects of technological processes (e.g., fermentation) on cannabinoid stability. It is necessary to develop optimal methods for the processing of foods containing such compounds. Defining any strategies for handling finished products (storage time and conditions) will enable the preservation of their bioactive ingredients and thus the preservation of the benefits of this type of food. Nowadays, the most significant unknown is the cannabinoid degradation products present in food; therefore, cannabinoid degradation pathways need to be studied to ensure food safety and maintain the trust of consumers. Expanding our currently inadequate knowledge on hemp will allow for the safe use of cannabinoids in food production, including functional food, which is currently attracting much interest among consumers.

To read the full investigative study please visit:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8588477/>



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TESTING OUR PATIENTS

By Psy-23



As you may be aware, patients in the United Kingdom who are given permission to use cannabis to treat their condition have still been subject to discrimination and possible persecution for the possession of what is still classed a controlled substance. In many cases this has led to people being treated horrendously by law enforcement officials who see them as nothing more than a 'drug addict' and a scourge on society. Despite the fact that medical cannabis was actually made legal in 2018, there is a huge level of disparity in the way that police forces actually choose to enforce the law in their locality and the lack of clarity on qualifying conditions and a huge number of hurdles that prevent people from accessing their medicine easily mean that many patients have found themselves in a strange state of legal limbo.

Thankfully, there has been hope in the past couple of years in the form of some high-profile cases in the news, which have shed light on the plight of some of the cannabis community, and the development of the Cancard (2021), which was created in collaboration with doctors and backed by politicians, as a system of identifying 'official' cannabis patients and allowing them to acquire cannabis legally.

When Carly Barton managed to bring the idea of the Cancard to fruition, she worked closely with the police to raise awareness of how cannabis can be used as a force for good. Her hope was to break the stigma of all cannabis users being seen as some kind of burden to society and to provide people with a little peace of mind when it came to trying to treating themselves legitimately (not an easy thing to do in the UK, so everything helps). While some people had previously managed to procure legal cannabis through private prescriptions there was always an underlying threat of confiscation and possible prosecution if a patient found themselves being stopped or investigated by the police. The Cancard is intended to be a form of evidence which can be provided to the police as proof that the holder is entitled to possess and consume cannabis and cannabis-derived products. In the first few months after its release, some 25,000 people in the UK had signed up to receive a card of their own.

Officially, the card only covers the possession of cannabis which has been received through a prescription but this poses a number of issues (not least in terms of the astronomical cost of the maintaining a supply through the official channels which is estimated to be close to one-thousand pounds for an ounce - roughly four-times the price on the black market). In addition, having a Cancard means that the owner has been recognized as having a condition which allows them to benefit from cannabis consumption and are recommended to be allowed to consume it for medicinal purposes, so arguing that they have to get their supply from channels that are increasingly difficult to access (especially since Covid) or live without something they rely on is a ridiculously harsh situation

to face. There is hope that there will be some sense of compassion and understanding given to any person found to be in possession of cannabis who also has a Cancard, regardless of where they managed to procure their cannabis from, but this is certainly not a given. There has to come a time in the future when a person's medical needs should not be locked behind a pay wall, but for now there are many people who have to risk their freedoms simply because they cannot afford to pay for official prescriptions.

In an interesting turn of events, news has come to light that a person with a Cancard has found themselves in court in relation to cannabis possession. While details are relatively scarce at this time, it is understood that the defendant, Mr. Toker, produced his card in court as a way of explaining to the prosecution that the case was unfair and unwarranted. What makes this more interesting is that Mr. Toker did not enter a plea to the offence of which he is accused and instead his defense have asked for the case to be thrown out in light of the Cancard being seen as a valid form of medical identification and an official recognition of his medical needs. From what we understand, this is the first time that the Cancard has been used as a form of defense in this way and the prosecution asked for the trial to be adjourned so that the recognition of the card can be clarified by a senior member of the Crown Prosecution Service.

While the court and the lawyers involved may not have demonstrated any prior knowledge of the card's existence, the odds are hopefully in the defendant's favor as sentencing guidelines mean that a judge must recognize and acknowledge that medical use of cannabis has been a recognized mitigation since 2012. What this means is that any person who can show evidence that they are using cannabis as part of their treatment must be treated with special consideration. As a result, in any case where the defendant can evidence that they have mitigating circumstances the judge can only proceed with prosecution

if it is deemed to be in the public interest. You would hope that a person who is medicating is unlikely to be seen as some kind of threat to public safety, so there is more than a small chance that this case will be thrown out upon review.

Although this is all hypothetical at this stage a positive result could set an incredible precedent which may go on to effect thousands of others (and many more in the future). Should the Cancard prove to be a viable document to produce in court it should hopefully make

the police rethink their approach to dealing with medicinal cannabis patients. It's bad enough that people are still being persecuted in this day and age for possession of a small amount of cannabis for personal use but the fact that people with severe conditions still find themselves at the mercy of the law when they can prove that they are legally allowed to possess it is completely ridiculous.

We'll be following the developments in this case closely and we will bring you an update wither online or in a future issue. In the meantime we wish Mr. Toker and all those who are working to support him the very best of luck in what may prove to be a landmark moment in the fight for common sense.





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CANNABIS DRUG INTERACTIONS

EVERYTHING
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By Paul James



Throughout the last few decades, we've seen a rise in medical cannabis being used for a vast assortment of health conditions. While cannabis doesn't usually treat these conditions, it has a fundamental tool in reducing specific symptoms, such as pain and stress.

This relief comes from cannabinoids found in the cannabis plant - the two most notable being tetrahydrocannabinol (THC) and cannabidiol (CBD). These cannabinoids - along with terpenoids, flavonoids, and other phytonutrients - are what's often looked into when concerning ourselves with cannabis drug interactions.

As of this time, we only know so much about the safety of individual cannabinoids, and very few serious adverse effects have been reported. Furthermore, marijuana's medical benefits have been observed in lower doses - making harm and toxicity from the plant much less likely.¹

Throughout this article, we will take a deeper look at cannabis drug interactions and what you should be aware of.

The Role of Cannabis Application

As discussed, drug interactions will occur depending on the chemical profile of a cannabis product, more specifically, which cannabinoids are found within that product.

However, administration forms also play a role in how cannabis interacts with other drugs and the body. The most common cannabis consumption methods include:

- **Inhalation** - By smoking or vaping herbal cannabis, resin, or concentrates.
- **Oral** - Prescription cannabinoids (i.e., Epidiolex), edibles, tinctures, or capsules.
- **Oro-mucosal or sublingual** - By specific cannabis edible products (i.e., lollipops, lozenges, nabiximols)
- **Topicals** - By creams, salves, and other skin applications

While not true for all, many of these products incorporate other ingredients that certain users may respond to differently. For example, a cannabis edible may contain ingredients you're allergic to, or a cannabis topical may have adverse reactions on certain skin types.

Due to these specific complications, it's in your best interest to consult your doctor before consuming a cannabis product and discussing potential adverse effects.

Common Cannabis Side Effects

Most people who consume cannabis are well aware of the psychoactivity it induces. Naturally, this comes with a string of other side effects that are sometimes found in non-psychoactive cannabinoids (such as CBD). The most common cannabis side effects include:²

- Anxiety
- Altered sense of time

- Ataxia
- Bronchitis
- Changes in visual perceptions
- Cough
- Decreased eye blink rate
- Decreased sperm count
- Dizziness
- Dry mouth
- Dysphoria
- Reddened eyes
- Reduced coordination
- Reduced tear flow
- Sedation
- Slowed pupillary response to light

These effects are mostly mild, especially if users are taking doses recommended by the company. However, these side effects can have other adverse reactions in the body on occasion.

For example, if you already struggle with bronchitis, it's likely inhaling cannabis herb is only going to worsen your condition.

On occasions, cannabis can have unintended side effects. For example, due to sedation and dizziness, one may find it challenging to operate a motor vehicle - putting them at risk of fatal injury.

Finally, long-term cannabis use may have health consequences that aren't immediately observable. For example, while it's been observed that cannabis may help reduce cancer symptoms (or those associated with cancer treatment), long-term smoking can release harmful toxins and carcinogens (cancer-causing chemicals) into the body.³

Cannabis Metabolism and Its Interactions with Isozymes

To better understand potential drug interactions caused by cannabis, it's crucial to know how cannabinoids break down in the body. THC and CBD, the most common cannabinoids, are metabolized by the isozymes CYP3A4 and CYP2C9.⁴

There are a number of medications out there that similarly require these isozymes to both metabolize and produce effects. These medications include, but aren't limited to:

- | | |
|-------------------|---------------|
| • Chlorpromazine | • Duloxetine |
| • Clozapine | • Haloperidol |
| • Cyclobenzaprine | • Naproxen |

While there haven't been studies to indicate such activity, it's theorized that THC may decrease serum concentrations of these medications as it induces CYP1A2.

On the other hand, CBD is a potent inhibitor of

CYP2A4 and CYP2D6. In turn, it may increase serum concentrations of the following:⁵

- Antidepressants
- Antihistamines
- Antipsychotics
- Antiretrovirals
- Benzodiazepines
- Beta-blockers and opioids (including codeine and oxycodone)
- Calcium channel blockers
- Cyclosporine
- Haloperidol
- Macrolides
- Sildenafil (and other PDE5 inhibitors)
- Some statins (atorvastatin and simvastatin)
- SSRIs
- Tricyclic antidepressants

Other Cannabis Drug Interactions

A few other studies have indicated that cannabis may interact with the following:

- Alcohol - One study indicated that alcohol may increase THC levels.⁶
- Clobazam - While typically used to help control seizures (convulsions), some studies indicate CBD can increase clobazam levels in children.⁷
- Theophylline - One study indicated that smoking cannabis caused a decrease in theophylline levels.⁸
- Warfarin - An anticoagulant often used in the treatment of thrombosis, THC and CBD have been found to increase warfarin levels.⁹

As the above information indicates, cannabis' interaction with drugs is minimal, with no reports of serious consequences when taken alongside other medications. Naturally, many of these studies looked into the short-term effects - therefore, long-term cannabis use alongside specific medicines isn't clear.

Cannabis and Its Interactions with Specific Health Conditions

Schizophrenia is a good example. While cannabis doesn't directly cause schizophrenia, it can worsen the condition in individuals already diagnosed or susceptible to it.¹⁰

Speaking of mental illness, some research suggests cannabis may increase the risk of depression. However, these studies aren't conclusive, as other research indicates cannabis doesn't cause depression. Instead, those with depression are already more likely to consume cannabis.¹¹

This is the biggest issue with current cannabis research - we only know so much. Since most studies remain in preliminary stages, there's a lot we still don't know about cannabis and how it impacts our health.

Most scientists agree that long-term cannabis use will affect our cognitive function (i.e., prospective memory and executive function). In turn, this may create irreversible cognitive impairments. Especially if long-term cannabis consumption begins at an early age (adolescence).¹²

However, whether or not cannabis has detrimental effects on physical health conditions remains unclear. Since there have been no reports of fatal marijuana overdoses, it's safe to assume that cannabis is safe to consume for most conditions.

Still, being the lack of research, we can't say this conclusively. If you're currently struggling with a specific health condition, we recommend seeking out studies concerning cannabis and your ailment. Chances are you'll find something on the subject, even if the results are slim.

Final Word

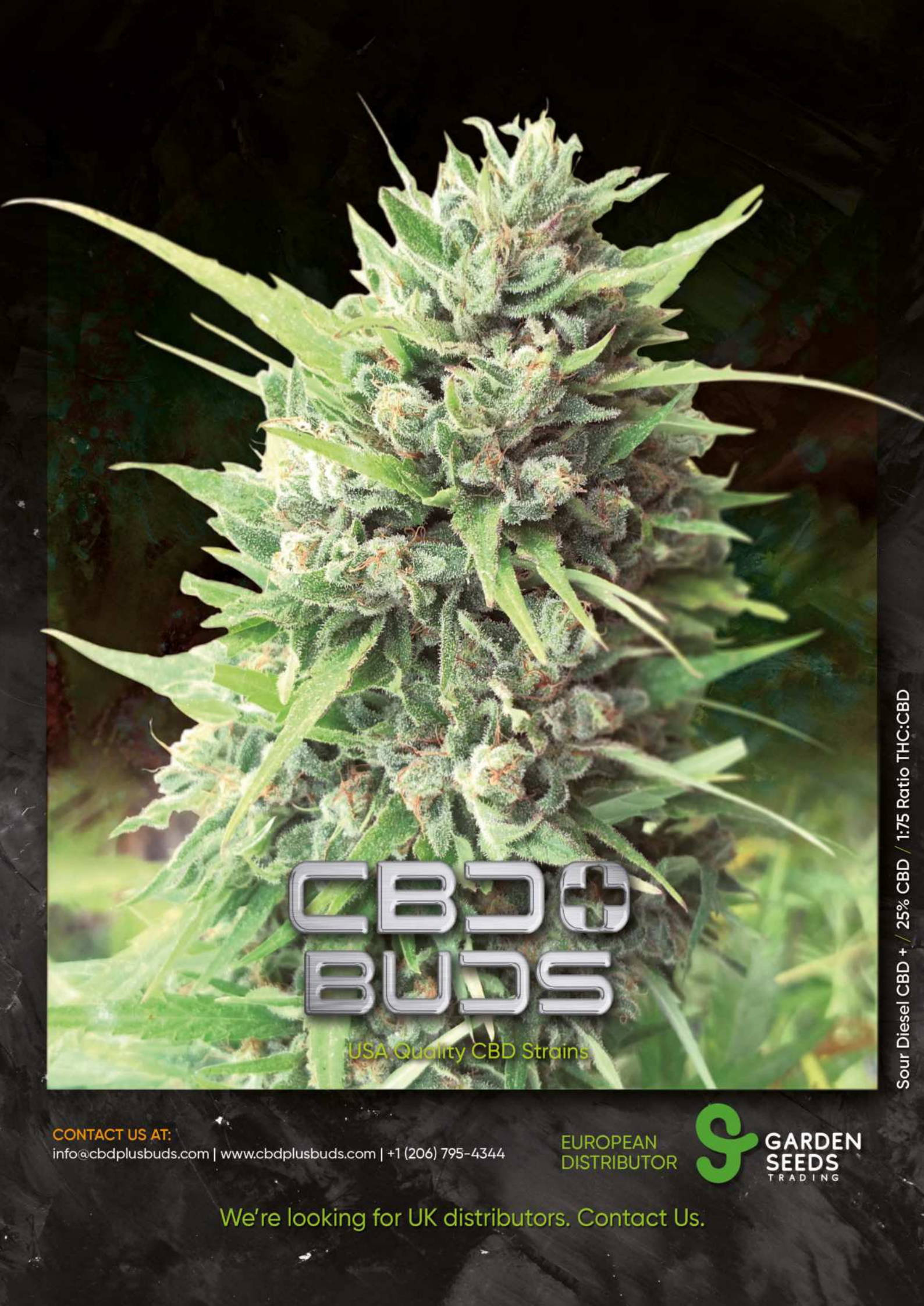
When it comes to drug interactions and cannabis, there isn't too much to concern yourself with. While THC and CBD do have specific drug interactions, they are so minor that they won't damage your body.

Still, if you're taking a specific medication, it's worth consulting your doctor on whether cannabis products benefit you. As mentioned, THC may decrease serum concentrations of certain medicines (such as Clozapine) and, therefore, make your treatment less effective.

As we also discussed, cannabis may help or harm the medical condition you're struggling with. Beyond drug interactions, it's important to seek out the research performed using cannabis on specific medical conditions.

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Relief From Symptoms

Study Spearheaded by Breastcancer.org Demonstrates Cannabis' Ability to Relieve Symptoms of Deadly Disease

By Bethan Bee Rose

Does cannabis harbor the potential to provide symptomatic relief in breast cancer cases?

According to a new study published in a journal of the American Cancer Society, quite possibly.

The topic of using cannabis for cancer relief is a controversial one, to say the least, mainly since the lack of research has left many people feeling blissfully uneducated about the incredible plant.

Fortunately, founder and chief medical officer of Breastcancer.org, Marisa Weiss, has shed some light on the subject from a new standpoint. Weiss, who also takes on the role of radiation oncologist at Lankenau Medical Centre, led this wide-ranging survey of breast cancer patients.

The results confirm that, as the plant's stigma gradually dissolves, more women with breast cancer are opening up to the possibility that the natural substance might help them. 79% of women surveyed online admitted to using the plant during treatment.

Facts Worth Knowing About Breast Cancer

Estimates published on the official website for the European Breast Cancer Coalition, A.K.A. "EUROPA DONNA," suggest that one out of every 11 women will develop breast cancer before turning 74. This type of cancer accounts for 28% of cases, thus making it the most commonly diagnosed cancer in the WHO European Region.

Statistics show that approximately 21% of breast cancer cases in Europe transpire in women below 50, whereas 35% of patients tend to arise between 50 and 64. The outstanding incidents commonly occur in females above that age.

Some symptoms of breast cancer that women ought to look out for are:

- Breast skin dimpling or irritation
- New armpit/breast lump
- Swelling on the part of the breast

- Pain in the nipple and/or around it
- Flaky and/or red nipple skin

What the Breast Cancer Researchers Discovered About Cannabis

Published in the journal *Cancer*, the survey of breast cancer patients discovered that 42% of people had consumed some form of cannabis to ease their symptoms, which included pain (78%), insomnia (70%), anxiety (57%), stress (51%) and nausea/vomiting (46%).

Approximately 50% of the participants were convinced that medical cannabis can treat depression — a belief system that human scientific trials have not yet backed up. Then again, the study did manage to dig up strong research supporting using the psychoactive cannabinoid T.H.C. (tetrahydrocannabinol) instead of its non-psychoactive counterpart, CBD (cannabidiol).

Most participants felt that cannabis was safe and did not feel concerned about product quality when buying from different sources. Meanwhile, just 39% of those surveyed informed their doctor about consuming the plant. A portion of those who attempted to discuss the subject with their doctor said they felt disheartened by the conversation.

People whose immune system has been weakened by cancer treatment should be extra cautious about buying their cannabis from illegal sources, say the study's authors, since "black market" weed is renowned for containing hazardous impurities, including mold, heavy metals, mildew, and chemical residue.

They concluded that doctors and patients might require additional information about cannabis since the trichome-laden plant's natural qualities could influence the effects of alternative substances.

Founder and C.E.O. of Breastcancer.org is Spearheading a New Trial Into CBD

Weiss didn't stop at this study to uncover the true potential of CBD. Currently, she is busy carrying out a CBD trial at Lankenau Medical Centre called "the Coala-T-CBD Study." The investigation seeks to determine whether or not CBD proves helpful as an aid following treatment for three types of Cancer: breast, colon, or ovarian cancer.

Participants should have already undergone chemotherapy treatment and be experiencing Chemotherapy-induced peripheral neuropathy (CIPN). This dose-limiting negative effect of cancer treatment occurs when peripheral nerves become damaged by various cytotoxic drugs.

"Chemotherapy-induced peripheral neuropathy is one of the most common and difficult side effects of the most widely used chemotherapies. It reduces the quality of life and the ability of some patients to complete treatment," said Marisa Weiss, MD. "We want to determine if CBD can help relieve CIPN in people to improve the patient experience and survival in those who've undergone chemotherapy."

CBD may possess suitability as an aid for anxiety, pain, and sleep, but it is "not as rigorous as we'd like it to be,"

according to Weiss. The oncologist is recognized as a leading figure in the breast cancer community-based in Philadelphia. Her looming research may free patients from perplexities about CBD.

Even though this cannabinoid took a backseat behind tetrahydrocannabinol (T.H.C.) — renowned for producing feelings of euphoria or impairment — in the latest study, previous research efforts have delivered a dose of hope for patients who suffer from other problems.

For example, a 2019 study published in the *American Journal of Psychiatry* showed that CBD oil majorly reduced cravings and anxiety in patients who were detoxing from opioid drugs. Conversely, due to its anti-stress capabilities, the anxiolytic compound is often touted for its ability to treat anxiety, depression, and PTSD symptoms. However, it cannot be claimed a "cure" as such.

CBD may even modulate memory and mood through indirect interaction with the CB2, dopamine, and serotonin receptors. The natural anti-inflammatory, antioxidant, and analgesic has also signified potential for alleviating A.L.S. symptoms, reducing unmanageable pain and diabetic complications.

As if that wasn't enough to paint CBD in a positive light, CBD's ability to work on GPR55 and TRPV1 receptors also make it an effective anti-seizure tool and, as a neuroprotective compound, it may even shield the brain from neurological disease.

Considerations

If we look at what's happening on the other side of the pond in America, we can witness an ever-expanding scene of medical cannabis providers. As of January 2022, 36 states and the District of Columbia have legalized the plant for medicinal use. Consequently, a growing number of cancer patients worldwide have started questioning their doctors on the potential of using it to deal with unwanted side effects; of both treatment and the disease itself.

Although existing research does paint a promising picture of cannabis' efficacy in treating breast cancer, there are some important things to consider. Cost is one thing, especially if medical cannabis is not covered by health insurance. Plus, depending on the location, the expense of registering/renewing medical cannabis certifications should be contemplated beforehand.

Patients should also pay attention to something called the "entourage effect." This mechanism occurs when cannabis compounds — other than T.H.C. — perform synergistically to modulate the plant's mind-altering effects. This means that the plant's effects might be hindered or amplified if consumed with different types of medication, so tread carefully and always seek professional guidance before trying cannabis.

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MED/HIGH CBD

YIELD PER PLANT: UP TO 6LBS

GERMINATION 99% | FEMINIZATION RATE: 99.9%



MED/HIGH CBD

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Autism & Cannabis

Cannabis Appears Capable of Transforming Future Autism Therapies

By Bethan Bee Rose

Cannabis and autism – which often fall under the umbrella term “Autism Spectrum Disorders (ASDs)” – are hot topics. The World Health Organisation (WHO) estimates that one in 160 children on the planet has an ASD.

With so many places on the world map embracing cannabis legalization – including Canada, Mexico, South Africa, Uruguay, and, most recently, Malta – it’s unsurprising that autism patients (and their caregivers) are abruptly turning to weed.

More connections are forming between cannabis and autism all of the time — connections that reaffirm the plant’s abundant medicinal qualities and power.

This is stimulating valuable debate into cannabis, which stands out as an evidence-based tool that can drastically alter the future landscapes for autism therapies.

Conventional Methods of Autism Treatment Aren’t Always Successful

Autism usually lasts for a person’s life and arises in early childhood. It is acknowledged as a developmental disorder that may struggle with relationships, social skills, and communication.

Numerous treatment options already exist for children and adults with autism, wherever on the spectrum they might be. However, since typical treatments can be unsuccessful and tedious, more patient caregivers and parents focus on the cannabis plant. Listed below are a few examples of alternative therapy for autism:

- **Applied Behaviour Analysis (ABA)** - This highly recommended treatment option has progressively emerged as a broadly embraced approach for healthcare professionals. Moreover, ABA is often implemented in schools and specialist treatment centers. Poor behavioral skills are replaced via this technique, which carefully analyses the child’s progress.
- **Assistive Technology** - Autistic children could tackle their communication difficulties if they partake in assistive technology sessions. During sessions of this kind, people with ASD can practice interacting through communication boards and electronic tablet devices.
- **Occupational Therapy** - Learning to lead an independent lifestyle is the goal of any autistic individual

and, likely, their parents, too. During occupational therapy sessions, ASD patients usually participate in activities that will assist in the development of motor and daily living skills, such as bathing, eating, and socializing/dealing with people.

- **Social Skills Training** - Autistic children can further improve their interaction with other people by joining a social skills training course. This type of autism therapy involves teaching children the most vital social skills, such as conversation and problem-solving.
- **Speech Therapy** - Not every person with autism requires speech therapy, but this specialist speech therapy can immensely improve communication skills. While some people might engage in verbal communication skills sessions, others will learn to communicate through picture boards or gestures.

Currently, no medication exists to cure ASD. Various medications may improve overall functioning in people with ASD. However, doctors occasionally prescribe autistic patients meds that target the core symptoms, e.g., prescription drugs that help reduce high energy levels; banish anxiety and depression; improve focus; prevent seizures and self-injury.

Cannabis May Work as an Aid to Relieve Disruptive Behavior

In 2019, the findings of a double-blinded, randomized placebo-controlled trial at the Shaare Zedek Medical Centre in Jerusalem indicated that disruptive behavior, when monitored by the CGI-I scale, was “much” or “very much” ameliorated in 49% of participants who consumed whole-plant cannabis extract.

Comparatively, 21% of participants used a placebo. The authors noted that the whole-plant cannabis extract sometimes caused appetite loss and somnolence.

In 2019, Adi Aran, MD, MSc, Ph.D., published a double-blinded, randomized placebo-controlled trial to gain a deeper understanding of cannabis’ potential to relieve behavioral issues in 150 autistic children.

The crossover design study featured two different phases of 12 weeks. Each set apart by a 4-week washout phase – saw study subjects be administered with two different types of oral cannabinoid solutions (one of which was a purified form of cannabis and the other of which was a whole plant extract) with a 20:1 CBD to THC ratio. Also, a placebo was administered during some study subjects.

Interestingly, the results were mixed, and there was no significant difference noticed in each group’s primary and secondary outcomes. The study cautioned autism patients and their caregivers that research limitations made it impossible to delve deeper into the subject despite the fairly good tolerance level associated with the CBD/THC mixture, thus spurring additional research.

Cannabis May Help Prevent Self-injury and Rage Attacks

The 2019 study by Adi Aran, MD, also assessed patients to ascertain cannabis’ impact on comorbid symptoms with ASD. Some frequent comorbidities associated with autism include anxiety, ADHD, anxiety, depression, epilepsy, gastrointestinal disorders, and obesity.

By conducting phone call interviews with parents, the researchers assessed the study participants biweekly.

Any notable changes in each person’s symptoms were contrasted against relatable data found in published studies.

The most significant improvement among patient groups was seen in self-injury and rage attacks, at a 67.6% improvement, followed by hyperactivity symptoms (68.4%), anxiety (47.1%), and sleep disturbances (71.4%). Common side effects include drowsiness and reduced appetite.

Cannabis May Improve Quality of Life Among Autistic Patients

Another quality that lends appeal to cannabis’ image in the field of autism is the plant’s life-enhancing properties for patients. Between 2015 and 2017, a non-placebo controlled study in Israel assessed 188 autism patients, many of whom were administered with an oil containing 30% CBD and 1.5% THC.

Daily activity parameters were assessed during the six months of treatment, and quality of life and mood. The results indicated that 30.1% of patients experienced significant improvement in their daily activities, while 53.7% reported a moderate gain and 6.4% a slight improvement. Conversely, 8.6% reported no change to their condition.

At least one side effect was reported by approximately 25% of self-reporting patients, most of whom said that they felt restless post-consumption. Regardless, the overall conclusion from this study was that CBD and THC in autism patients are generally safe, effective, and well-tolerated.

Conclusion

The autism community is gradually learning to accept its attraction from the medical cannabis industry. The legal cannabis market is growing at an exponential rate – according to Verified Market Research, it could reach USD 111.31 billion (GBP 82 billion) by 2028. – and there’s no sign of it hitting the brakes anytime soon.

Despite the positive and profound insights, these findings preclude further research. Plus, until we know 100% that cannabis can help treat autism with success and no harmful side effects, autism and cannabis will continue to be primarily divided.

The use of cannabinoids in autistic children is discouraged by the American Academy of Child and Adolescent Psychiatry. This (stance) remains the same despite the FDA’s consent to use cannabidiol for seizure relief.

The American Academy of Pediatrics maintains a similar opinion since cannabinoids may provide an option for children who’ve exhausted alternative treatment methods for life-threatening diseases.

On that note, it remains as relevant as ever for psychiatrists to guide patients and their loved ones in contemplating medical cannabis as a treatment option for autism. Conversely, trained healthcare professionals need to acknowledge the existing data and the likelihood of even more scientific investigations spotlighting cannabis’ suitability as a treatment for autism.

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Kitchen APOTHECARY

by Sharon Letts

Rebecca Forbes, treating Diffuse & Follicular Non-Hodgkin's Lymphoma and chronic pain with cannabis-infused olive oil

As with many chronic patients who find relief with cannabis in non-legal states in the U.S., Rebecca Forbes was forced to move her family from their home state of North Carolina to the legal State of Maine to ensure safe access to other medicine.

In 2020, North Carolina Governor Roy Cooper (D) convened a task force to study racial inequities within the criminal justice system; the outcome is that the state should decriminalize cannabis altogether.

But that didn't help Rebecca Forbes, who realized cannabis as medicine in 2010.

A poll conducted by Elon University in January of 2021 found that 54 percent of North Carolinians support the legalization of cannabis for adults, with a stunning 73 percent in favor of legalization for medicinal use - making the future hopeful.

With 18 states in the U.S. now legal for adult use, and 36 states now legal for medicine as of this writing, the number of conservative states, such as North Carolina, that are still persecuting patients is dwindling, with anecdotal stories of healing becoming too obvious to ignore.

As news of successful medicinal use circulates solely via word of mouth and on the internet, patients needful in illegal states are going ahead and finding relief with myriad ailments where traditional pharmaceutical treatments fail.

As I've written dozens of times, cannabis patients are doing the world ahead of legislators and those in the medical profession being educated. We end up educating our doctors by example.

From Oxy to Cannabis

After a miscarriage in 2008 in her 40s, a tumor was found on her adrenal gland following an abdominal CT scan.

It's important to note that because she did not qualify for insurance at the time, due to pre-existing conditions, the lymphoma wouldn't be discovered until March of 2014 when her insurance was then forced to do the scan.

The subsequent diagnosis came after a biopsy at the University of North Carolina Cancer Center. Her cannabis use came before this diagnosis, successfully treating various conditions, including shrinking the tumor.

Before the lymphoma diagnosis, Forbes has prescribed Oxycontin for the chronic pain that soon led to further use of Vicodin and Lortabs, sharing that she became non-functional as a mother to her other children at home.

"This type of tumor affects women my age," she said. "It's caused by an overproduction of cortisol - with the only option being surgery. Because of where the tumor was, the surgery was risky, so I declined."

As detailed in Medical News Today, the type of lymphoma finally diagnosed affects the white blood cells in the lymph system, which is part of the immune system."

Considered a severe condition, it's typically not detected until it's advanced, with an estimated 70 percent surviving a minimum of five years after receiving a diagnosis.

Follicular lymphoma is a type of NHL. Follicular lymphoma develops when the body produces abnormal B lymphocytes. This type of lymphoma is usually not curable, but chronic with 80 to 90 percent of patients living with it for up to 10 to 12 years.

Meanwhile, her pain killer uses soon got the best of her, and she ended up sleeping most of the time.

"I'd wake up drooling and couldn't breathe," she continued. "My body went into full edema - swelling up with water gain. My gallbladder was failing, and I was going into congestive heart failure. The doctors told me I'd have ten



years or less to live, and I knew I was going to die."

Forbes said she began hearing about Canadian Rick Simpson, the cannabis oil recipe he shared worldwide, and the seemingly miraculous healing that ensued globally.

"I finally broke down and smoked a joint with my dad. That was in 2009, after one year of suffering. Five weeks later, I was no longer taking any narcotics - just by smoking," she said, still in disbelief herself.

After watching Rick Simpson's story, Run from the Cure, Forbes said she was still skeptical about the efficacy of using

cannabis in this way but curious.

"Knowing surgery to get the tumor wouldn't work for me, using the oil made me feel like I could take my life into my own hands - so I wouldn't die and have to leave my kids," she said, teary-eyed. "But I was still skeptical because of all the bad press on cannabis for so long. You need to remember; I had never tried cannabis or any other drugs before I started smoking."

Skeptics Beware

Early in 2010, a friend gave Forbes a quart jar of cannabis-infused canola oil.

"He told me it might help me," she laughed. "And me - with no faith at all, stuck it in the cabinet and forgot about it!"

Months later, in July of that year, Forbes ended up in the emergency room in complete organ failure.

"I was told I had 24 hours or less before my kidneys would fail. They told me to go home and say goodbye to my family," she remembered. "I left the hospital against advice, went home and pulled the quart jar of infused oil out and took three or four huge gulps!"

The infused canola oil probably tested upwards of 60 percent activated THC (tetrahydrocannabinol), the psychoactive compound in cannabis - knocking her out until the next day.

This is an excellent time to infuse the "start low, go slow" lesson when ingesting high THC activated edibles, medibles, or otherwise. But, the sheer panic of losing her life caused her to dose in this way.

The good news is, you can't die after overconsuming cannabis. You may feel as though you are. Add alcohol, and you'll fade, or blackout, with many telling stories of out-of-body experiences.

Heart palpitations are common, but it's not adversely affecting the cardio system. It affects the central nervous system, making you feel like a cardiac episode.

Amazingly, after waking up the next day, Forbes said she took more of the oil in the same way.

"After several days of this, I started feeling much better!" she exclaimed. "Now, I understand why they say cannabis treatments sound too good to be true. The healing is fast and noticeable right away. It made me kick myself for having that bottle of oil sit in the cupboard for as long as I did!"

After just two weeks, Forbes' doctors cleared her of organ failure, and she set out to make her oil.

"I've been making my own infused oils ever since, and needless to say, 12 years later, I'm still alive and have seen three grandchildren come into this world," she concluded.

Rebecca's Cannabis Infused Olive Oil

(Stovetop Method)

- **1 oz. ground cannabis**
- **1 liter or 4 c. olive oil**

Method

Place cannabis and olive oil in a stainless-steel pot

Set heat to low (160-180 degrees)

Simmer for 4-5 hours (Rebecca uses an electric stove)

Stirring occasionally

Check color: should be a rich, dark color - from dark green to gold

Strain with fine mesh or nut bag and decant into a pourable jar

It makes a bit less than 1 liter or 4 cups, with some lost in straining

Rebecca's dosing:

1 T. 3X a day

This amount must be worked up to, with a "start low, go slow" protocol to get used to the THC activated by heat.

This infused cooking oil can be tested at upwards of 60 percent activated THC. If you are not used to the psychoactive properties of activated THC, start with a very low dose and work your way up, as follows.

Dosing Notes:

Suggested to start: ¼ t. To be taken at night. This will aid in sleep and get you used to the THC until you can find your therapeutic dose for daytime use. It only takes some days to get used to the THC and begin upping the amounts.

Always label your remedies, showing the THC is activated. Keep in a safe place, out of reach of small hands, just as you would with prescription medications.

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GOOD NIGHT INSOMNIA!

How Cannabis Helps Sleep Tight

By Dario Sabaghi

Although very common, insomnia can be very annoying. Around 16 million people suffer from sleepless nights or insomnia in the United Kingdom¹, and nearly 70 million Americans² have a sleep disorder.

Insomnia can be recognized very easily. People find it hard to go to sleep, wake up several times during the night, feel tired when you wake up, and struggle to nap during the day even though you feel tired.

Not all insomnia is the same. People can experience it in different ways, as there are many potential causes of insomnia, including stress, irregular sleep, jet lag, shift work, lifestyle, and mental disorders.

Sometimes, insomnia can also become chronic and increase the risk of accidents and mental health disorders, including depression and anxiety.

Since ancient times, people have been using cannabis to treat insomnia as it has a beneficial effect on our sleep.

But as cannabis has gone mainstream in recent years, more and more people are using cannabis to relieve sleep disorders. Furthermore, the sales of CBD-based products have boosted the awareness of cannabinoid benefits of sleeping.

Enthusiasts claim cannabis helps them relax and sleep better. But what does science say about such a claim? Do people relieve insomnia following cannabis use?

In recent years, researchers have tried to answer this question. The growing interest in cannabis has generated the need to understand better the harms and benefits of acute and long-term cannabis use for therapeutic purposes.

But before going through some studies that showed the beneficial effects, it is essential to understand the impact of cannabis on insomnia.

Several studies have shown that our circadian rhythm interacts with our endocannabinoid system.

Circadian rhythm is the natural, internal process that regulates the sleep-wake cycle and repeats every 24 hours.

The endocannabinoid system is a complex cell-signaling system. It involves a combination of endocannabinoids, enzymes, and cannabinoid receptors that help regulate several functions in the human body.

As cannabis strongly interacts with the endocannabinoid system through CB1 and CB2 receptors, its use facilitates

our sleeping, according to several studies.³

In particular, while cannabis decreases the latency period for falling asleep, it increases the non-REM (rapid eye movement) sleep. During our REM phase, our brain activity is very intense, and THC decreases REM sleep.

Although researchers still don't know how cannabis influences our circadian rhythm through the endocannabinoid system, they believe THC leads to drowsiness as it reduces the amount of REM sleep. More recent studies have shown that high doses of CBD may support sleep.

A 2021 study published in the Journal of Medical Internet Research by a group of researchers from Canada⁴ has found that medical cannabis patients improve their sleep when using cannabis.

But most importantly, researchers suggest a possible advantage in treating insomnia by using predominant-Indica strains, which are more effective when compared with predominant-Sativa strains.

As Indica strains contain a high level of CBD, researchers have noted that predominant-Indica and Indica-Hybrid strains were the most commonly used strains for insomnia. Predominant-Sativa and Sativa-Hybrid strains were used least for the management of insomnia symptoms.

An article published in Medicines, an international, peer-reviewed, open-access journal by researchers from the University of New Mexico (United States) in 2018⁵, has highlighted how the effectiveness of cannabis in treating insomnia also depends on the device used to consume cannabis.

Researchers have found that using pipes and vaping devices has more significant symptom relief when compared to the use of joints. Furthermore, vaporization was also associated with lower adverse effects.

In this study, researchers have noted that CBD had a higher statistically significant symptom relief than THC, but the cannabinoid levels generally were not associated with differential side effects. Furthermore, researchers

have found that the use of Sativa-strain products was associated with lower symptom relief and more negative side effects when compared with the help of Indica-strain products.

We can't find congruous results by reviewing several studies about the relationship between cannabis and insomnia. This pattern may be probably due to the different experimental approaches used. Although researchers state that the endocannabinoid system promotes sleep, the effects of cannabis on insomnia are not yet fully understood.

Researchers have found that THC has a sedative effect, whose mechanisms of action overlap with psychotropic ones. It facilitates falling asleep and probably increases the non-REM sleep phase and decreases the REM sleep phase.

CBD seems to have different behavior depending on its dosage. Low doses of CBD stimulate wakefulness and decrease daytime sleepiness. High doses of CBD promote sleep and stabilize the sleep-wake cycle.

But interestingly, some studies⁶ say that the interaction of these two cannabinoids may trigger the sleeping in a person through the entourage effect. In this context, cannabinoids don't work singularly but interact together to help people fall asleep.

CBD may just be reducing symptoms like anxiety. The harmonized interaction between THC and CBD seems to carry over to sleep. This effect would allow a person to relax so that natural sleep mechanisms can take over. Meanwhile, the sedative effect of THC and its other properties may be helpful to sleep.

However, since the data in the literature are sometimes conflicting, further studies are needed, especially on patients and on a large scale, to define cannabis consumption as sleep therapy.

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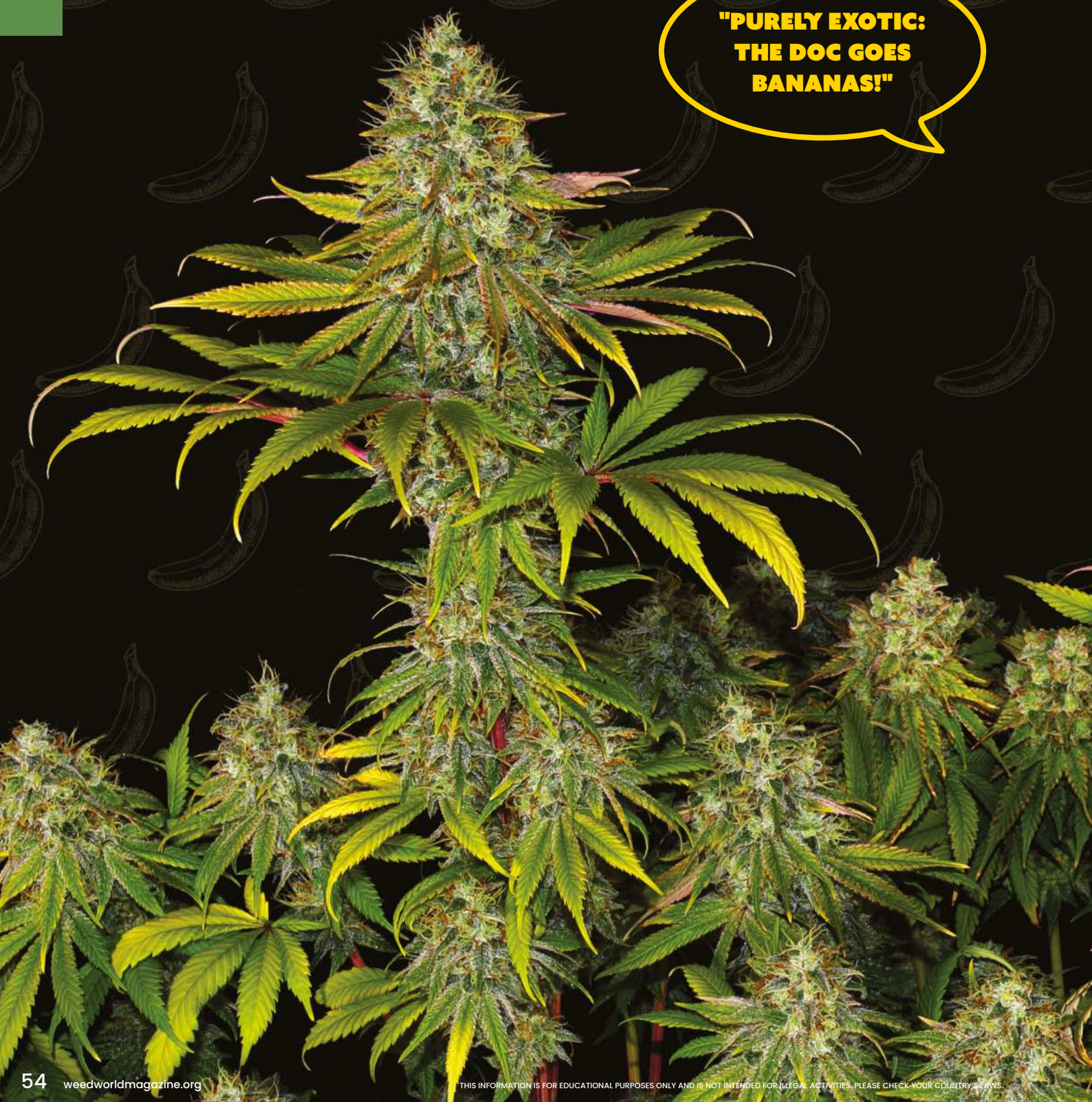
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TROPICANNA BANANA

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**"PURELY EXOTIC:
THE DOC GOES
BANANAS!"**



BARNEY'S FARM'S CALI COLLECTION IS BURSTING WITH GLORIOUS STRAIN HIGHLIGHTS, AND SOME OF THEM COME TO YOU IN TROPICAL FASHION. YES, TROPICAL IS TOPICAL! THE MOST RECENT EXAMPLE OF THIS IS THEIR CANNA CREATION, "TROPICANNA BANANA."

THE SOUND OF THIS STRAIN NAME ALONE INSTANTLY MAKES YOU MENTALLY SHIFT TO A WHITE SANDY SHORE IN THE SOUTH SEA AND JOIN A BEACH PARTY WITH A TASTY FRUITY COCKTAIL IN ONE HAND AND A LIKEWISE FRUITY SPLIFF IN THE OTHER.

Fittingly, Barney's describes Tropicanna Banana as "a mesmerizing tropical cocktail of fresh and fruity flavors," and its taste is supposed to have a touch of banana. The strengths of this slightly Sativa dominant hybrid (60:40) not only lie in its exquisite aroma, but of course, it also boasts an unusually high yield potential – up to 700 grams dry are achievable indoors per sqm. – as well as the heaviest trichome coating and an accordingly strong effect, fueled by a revved-up T.H.C. count of 22-25%. This variety's superb characteristics don't come as a surprise if one looks at its fine pedigree: Tropicanna Banana consists of Tropicanna (Girl Scout Cookies x Tangie) x Banana Kush. So exclusively elitist genetics went into this cross, which

produces strong plants that, given a long veg stage, grow to indoor heights of up to 110 cm and finish within 65-70 days of flowering. Another plus of this strain is its outstanding resilience against mold and spider mites. Tropicanna Banana also excels in an outdoor environment under favorable conditions growers may reap in extremely ample harvests, according to Barney's up to two kilos per plant. Finish time under natural light is between the second and third week of October.

THE DOC PUTS TROPICANNA BANANA TO THE TEST: GREAT GROWTH PERFORMANCE

Despite its slight Sativa dominance, Barney's banana-style exotic's kind of effect is relaxing and calming, and it also has a reputation for being euphoriant. A happy tropical weed great for unwinding – spot-on for The Doc, a big fan of this Dutch seed company ever since his first Barney's Farm strain grow experience. The usual two test seeds planted had flawlessly germinated after three days. Just as described, the two plants exhibited robust and vigorous growth and started to branch out early, which had led to a multitude of vigorous side shoots when The Doc moved them into flowering four weeks after germination. Also, they were pretty uniform. They stood at the end of the growing stage at 44 and 47 cm in height. "That's what I call a great growth performance; these two plants are looking perfect so far!", The Doc praised Tropicanna Banana.

STRONG INSTINCT TO STRETCH, VERY EARLY RESIN BUILD-UP, AND AN EXTRAORDINARY SCENT

Three weeks into flowering, The Doc reported: "They are still very homogeneous and pretty much willing to stretch! In the first three weeks of flowering, they've almost doubled in height, and the stretching stage even isn't over yet. At

**"COCKTAIL OF
FRESH AND FRUITY
FLAVOURS!"**

the shoot tips and in the axils, tightly filled young buds have emerged out of which numerous white pistils and little leaves are protruding; they already display a resinous shimmer." Two weeks later, he continued, "That early trichome shimmer turned out to be a prelude to a resin gland hyper production mode! Because the buds - meanwhile are pretty voluminous, by the way - are covered by a dense lawn of trichomes giving off a very present scent that means a new olfactory experience to me: it's an extraordinary mix of grapefruit, banana, and soap! Yes, this scent has a hint of saponaceous note, but it reminds me of fragrant wellness soap in a positive, pleasant sense. However, the grapefruit and banana notes are battling for scent supremacy here, and both of these elements are distinctive.

A MIGHTY GUSH OF RESIN SPILLS OVER BIG HARD BUDS

A good eight weeks of flowering had passed when The Doc noted down, "A mighty gush of resin glands has spilled over the buds; they are wrapping themselves in a super frosty resin coat now. Even big multi-fingered flower leaves are entirely coated in thick oily resin layers. Also, the buds have become as large-sized and tight as I had expected. With a pretty low leaf count, that will facilitate harvest work later. What a lovely bloomage! The floral structure of both plants is almost identical; I find it hard to distinguish them from one another. Which is also true for their shape - in the course of flowering, they've evolved into a beautiful looking diamond-shaped growth habit."

With 65 and 68 days, the two Tropicanna Bananas precisely hit the flowering period of 65-70 days as stated by Barney's Farm and were harvested by The Doc. The sweet fragrance they were exuding had risen to overwhelming intensity, "a bewitching tropical scent that would certainly be appreciated by non-cannabists, too," supposed The Doc. With final heights of 98 and 105 cm, the two plants lived up to Barney's forecast.

A PURELY TROPICAL SCENT: BANANA DOMINATES THE DRY FLAVOR

Not a little to the surprise of The Doc, the dry yield of both plants was a heavy combined 220 grams: "I would have eaten my hat if these two stunners had failed to surpass the 100 grams mark on the average!" he laughed. The dried Tropicanna Banana flowers, coated with a lavish trichome icing, were as sticky as super glue, raising the highest of expectations. Once dried, the buds revealed quite a phenomenon: the scent's banana note had come to the forefront even more and now uncontestedly ruled that sweet tropical odor. "Pretty amazing; that's an unmistakable banana-infused flavor now. That sourly grapefruit component is still present but kind of watered-down. And there's no hint of soap any longer, so nothing's left but a purely tropical scent now", the old grow veteran enthused.

VAPORIZING THE STRAIN: THE DOC GOES BANANAS AND EXPERIENCES A CRESCENDO OF EUPHORIA

To test the strain's effect and taste, The Doc opted for his Crafty vaporizer this time. After he had loaded the filling chamber with half a gram and the device had reached operating temperature, he was good to start. He took a long deep 10-second draft and kept the vapor in his lungs for

a spell while he savored the delicious taste of Tropicanna Banana: "I'm going bananas! This stuff tastes like a sweet banana snack in the form of vapor, simply phenomenal! With three deep hits down his lungs, The Doc began to feel that Tropicanna Banana had planted a nucleus of mirthfulness into his head, releasing a swelling wave of euphoria that eventually built up to a real crescendo. With his head in the clouds, The Doc grinned from ear to ear, thinking, "why would you go on holidays if Tropicanna Banana brings you tropical easiness and happiness and makes you take a stroll in your mind along an endless white beach?" After a while, a physically relaxing effect came into play as well, perfectly complementing that intense euphoric sensation. The Doc didn't feel slackened, though, but simply lithesome and temporarily released from the chronic limb pain in his legs. His mental tropical holidays lasted a good two hours, and he started his next vaporizing session.

In summary, he said, "once again, a fascinating variety from Barney's Farm, genuinely adorable! Tropicanna Banana fully lives up to its fruity name, and this strain is like a tropical dream come true.

One thing's for sure - now and then I'll let myself be carried away by this weed from the dismal German winter for a sunny mental trip to the tropics...."

CULTIVATION DATA

Genetics: Tropicanna Banana ([Girl Scout Cookies x Tangie] x Banana Kush)

Vegetative stage: four weeks (after germination)

Flowering stage: 65 + 68 days / 65-70 days in general

Medium: Plagron Grow Mix soil, 11 litre pots

pH: 6.2-6.6

EC: 1.2-1.8 mS

Light: up to 12 x SANlight S4W = 1680 watts

Temperature: 19-28°C

Air humidity: 40-60%

Watering: by hand

Fertilisation: Organic Bloom Liquid from Green Buzz Liquids

Additives/stimulants

Living Organics, More Roots, Humin Säure Plus, Big Fruits, Fast Buds and Clean Fruits from Green Buzz Liquids

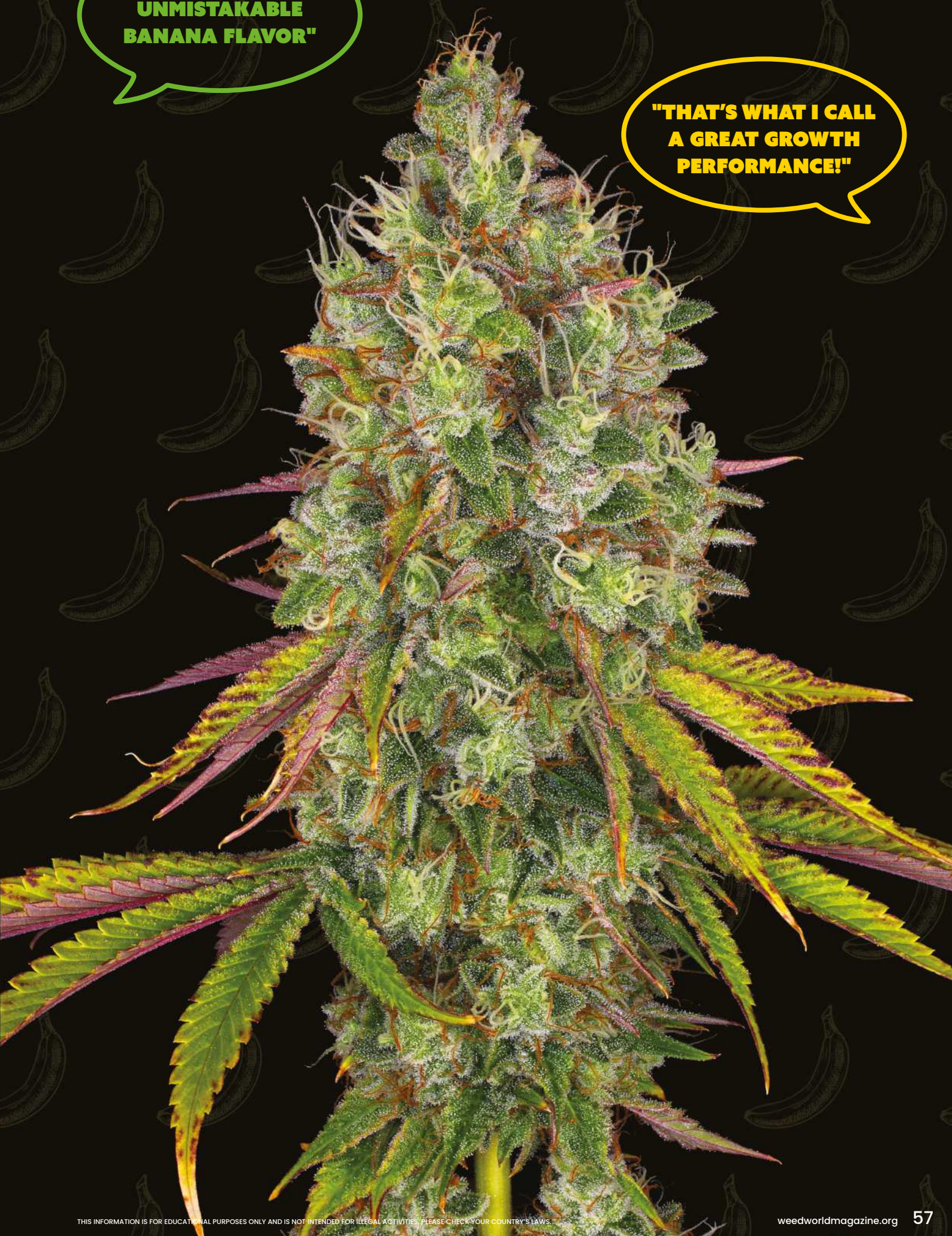
Tools: CleanLight Pro for mould prevention

Height: 98 + 105 cm

Yield: together, 220 grams

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BANANA FLAVOR"**

**"THAT'S WHAT I CALL
A GREAT GROWTH
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For more info, turn to page 108





TIME TO BUILD

BY PSY-23

Recently, we had the chance to speak with the CEO of BioHarvest Sciences, Ilan Sobel, about the exciting developments and progression they have made with their revolutionary BioFarming technology.

You may have read in a previous issue about their research into cannabis and their proprietary systems that allow them to essentially grow trichomes in a medium in a much shorter timeframe than you would need for a traditional grow.

Essentially this means that they can grow trichomes without the need for growing the plant, but this is an evolution of a naturally-occurring process. Add in the fact that this enables complete control over the end product and it's easy to see why this is a very exciting prospect for the future of cannabis and cannabis-derived products.

When speaking with Ilan it is clear that he is an incredibly passionate and driven individual. We spoke about his plans to build from these initial tentative steps as they consider the numerous applications for the 'Amalgamated Trichome Structures' which they have previously managed to cultivate. Having already established themselves as a company that can deliver results through the continued success of 'Vinia', it's clear that he has no intention of resting on his laurels, so to speak, and they have now managed to make a major breakthrough which has the potential to take this already-impressive achievement to the next level.

When occurring in nature, the trichomes on cannabis are formed on the surface of the flower or leaf when the plant moves into its bloom stage. They serve numerous purposes, including acting as a form of defense from animals and insects, but the main point of focus for many is that they act as miniature cannabinoid factories, per se, and help to develop potency, terpenes and flavonoids. The rate of growth, density of trichomes and overall levels of THC/CBD (and the countless other cannabinoids) of a plant is something that can vary wildly. Interestingly, there is no real link between the appearance of an abundance of trichomes and the actual quality of a particular plant and, as such, more trichomes doesn't magically mean that it will have more of an effect on the consumer. While traditional growers may seek to produce higher concentrations of trichomes through the application of a broader light spectrum, it is often more dependent on the genetics of a particular strain than something which the grower can influence too dramatically. People often use trichomes as a way of assessing the ripeness of a plant, as the subtle color changes in the heads are a good indicator of maturity. While this is not a perfect science, it remains the preferential method for many growers around the world.

Over the past decade, the dedicated team at BioHarvest have been the forerunners of this evolution in plant cell biology and their initial success in cultivating their Amalgamated Trichome Structures (ATS) has only spurred them on to greater achievements. In a huge breakthrough they recently announced that they have managed to grow multiple trichomes in a stacked coral-like structure which provides them with much greater stability and allows for the growth process to be upscaled at a far greater rate than they previously thought possible. During the growth process the trichome structures develop inside a bioreactor and are



subject to the motions of the fluid medium. As these are such delicate structures there was a fear that attempting to grow on a larger scale could potentially lead to disaster, but the discovery that they can be grown in Amalgamated Trichome Coral Structures (ATCS) looks set to revolutionize the process all over again.

This breakthrough is a huge positive and solves one of the key issues the team faced when they first started their research into the potential of cannabis to be grown in this way. As the trichomes are grown without the naturally-occurring support structures of the traditional stems/stalks, there were concerns that the trichomes might be more fragile and breakdown while in the bioreactor. As a result of the unstable conditions within the bioreactors (which contain a liquid medium in a state of dynamic flow) there was an awareness and understanding from the outset that this would be a likely hurdle that the team would have to overcome eventually. In overcoming this problem, BioHarvest Sciences have pushed science even further into a possible future and opened the doors to an even greater range of opportunities for them to break into the thriving cannabis industry in both the medical and recreational markets.

One of the first benefits to come from the formation of the ATCS is that it has already provided the team with the stability they needed to upscale their production. As the new coral formations mean that the trichomes grow more densely than before, the decision was made to move the process to a much larger bioreactor (roughly 250x the scale of previous grows). This is a massive accomplishment, but Ilan is confident that this is just a stepping stone to even greater things. Now that they have seen how the ATCS copes with the strain of being in a much larger process it has inspired their confidence ten-fold and a move to an industrial-scale bioreactor is now the next goal they intend to aim for. He firmly believes that the transition to significantly larger bioreactors will be a relatively straightforward process, thanks to their knowledge and the success they have already seen, and this upscaling will allow for the bioharvesting of cannabinoids to be commercialized more easily.

In preparation for the expected expansion of their product range with the continued success of their R&D team, focus has begun to shift towards the legal side of bringing their products to market. Ilan was keen to stress that this method of trichome production is unique in that they have complete control over every aspect of the process. What this means is that they are able to produce consistent results with exact levels of THC being precisely achieved within each production run. In a release on their official website, Ilan outlined the appointment of two top-ranked law firms as a clear indicator of the company's intentions to push forward at speed. He was quoted as saying: "We have recently reached critical milestones in our Cannabis and cannabinoid development program that underscore that underscore the urgency of obtaining all the necessary legal and regulatory approvals. Cannabis and cannabinoids represent an important vertical for BioHarvest. With our technology, we believe we can help meet the demand for high quality, consistent and sustainable medicinal and wellbeing products."

WHY CANNABIS WORKS SO WELL FOR PTSD

By Paul James





Cannabis is a fairly popular medicine among veterans struggling with post-traumatic stress disorder (PTSD). There's enough substantial evidence out there that PTSD is often a qualifying condition in many states' medical programs.

But why does cannabis work so well for PTSD? How does it interact with the brain and body to help relieve this form of anxiety? Throughout this article, we will take a deeper look at PTSD and the studies that reveal how cannabis has helped. In the end, we'll give newcomers some advice on the best options when it comes to cannabis for PTSD.

What is PTSD and How Does It Affect You?

Post-traumatic stress disorder (PTSD) is a form of anxiety that develops after someone experiences a traumatic (shocking, scary, or dangerous) event. Naturally, most people recover from traumatic events, with anxiety symptoms only lasting for the duration of the event and maybe some time afterward. However, people with PTSD are unable to shake off these symptoms.¹

Sometimes symptoms begin early (within 3 months of a traumatic experience), and sometimes they start much later (1 year afterward). Regardless of the timespan, PTSD symptoms are often characterized by vivid flashbacks and distressing nightmares concerning the traumatic event.

However, clinically speaking, PTSD symptoms are categorized into four different areas:

- **Re-Experiencing Symptoms** - Such as flashbacks, bad dreams, or frightening thoughts.
- **Avoidance Symptoms** - Staying away from places, events, or objects that remind you of the traumatic event.
- **Arousal and Reactivity Symptoms** include feeling on edge, being easily startled, having difficulty sleeping, and developing angry outbursts.
- **Cognition and Mood Symptoms** include negative thoughts about yourself or the world, feeling guilt or blame, losing interest in activities you once enjoyed, and difficulty remembering critical aspects of a traumatic event.

In many cases, there is usually a trigger for PTSD symptoms. For example, if you were in a car accident where a red car hit you, you'll likely develop a fearful response whenever you see red cars.

Furthermore, it's challenging to determine what is considered a traumatic event and what isn't. This is since people react to trauma differently - therefore, what's traumatic to one person may not be to another. One study found that PTSD may be over diagnosed, and in turn, many out there are being treated for it when they may have some other form of anxiety.²

How Does Fear Operate in the Brain and Body?

When we're initially met with fear, we're usually met with the fight-or-flight response. A natural occurrence where our brain and body decide to either fight or run away from threatening stimuli. Through this response, we're likely to be met with the following changes:³

- **Constricted peripheral blood vessels**
- **Dilation of central blood vessels around our vital organs**

- Increased breathing rate
- Muscle tightness (may cause goosebumps)
- Rapid heartbeat

This response first occurs in the amygdala - a bundle of neurons part of the limbic system. From there, the amygdala signals the hypothalamus to activate the pituitary gland in our nervous system. This causes an endocrine (or hormonal) response throughout the rest of our body.^{4,5}

Through this systematic occurrence of events, we're given doses of adrenaline which will cause us to either fight or flight. This adrenaline is the sole reason our body reacts mentioned above, and such a reaction allows us a better chance against threatening stimuli. It's a reaction that has helped all living beings survive throughout time.

Unfortunately, some people have this reaction when there technically are no threatening stimuli - as observed in those who struggle with PTSD. While there may be a reason for the response (i.e., a trigger like the red car as exemplified above), more often than not, this reason is unwarranted.

How Does Cannabis Interact With Our Fear Response?

To relieve symptoms of PTSD, it's vital to reduce this bodily reaction. Luckily, cannabinoids like tetrahydrocannabinol (THC) and cannabidiol (CBD) may play a crucial role in just that.⁶

Cannabinoids found in plants (phytocannabinoids) work directly with cannabinoids found in the body (endocannabinoids) when cannabis is consumed. In particular, THC binds itself to CB1 receptors, which have been found in the amygdala - the location where our fear response begins.

Since THC targets those same receptors, its "signals" an emotional reaction throughout the rest of our body (as observed above) that either relieves anxiety or causes paranoia. What determines which reaction you experience depends on a number of factors, from previous cannabis experience, dosage, and your overall personality.⁷

This is why cannabis can induce anxiety in some while relieving it in others. Though, it should be noted that we need more research to fully understand this process.

Most researchers agree that THC can have an anxiolytic effect when consumed at low dosages. Some studies have observed that THC can even deliver on its medicinal value when it doesn't cause a psychoactive reaction.

However, due to the psychoactivity, some prefer treating PTSD with non-psychoactive cannabinoids, such as CBD, cannabigerol (CBG), or cannabitol (CBN). In particular, CBD has a way of balancing out our endocannabinoid system (ECS) - a network of chemical signals and cellular receptors responsible for many bodily functions, such as learning and memory, emotional processing, pain control, and sleep.⁸

Studies Concerning PTSD and Cannabis

A recent study discovered that one-third of people who use medical marijuana in states where it's legal cite PTSD and their qualifying condition - making it a critical condition for cannabis.⁹

However, there's been such a lack of research concerning cannabis and PTSD that we can't conclude whether or not it's beneficial (or harmful). As of right now, we know the following:

- Some research suggests that CBD may be a useful tool in reducing the impact of a traumatic event immediately after it occurs.¹⁰
- A 2016 study discovered that drugs interacting with the ECS (including THC and CBD) may help to reduce PTSD symptoms.¹¹
- A 2016 study found that when applied to the skin, CBD was effective in reducing anxiety and sleeping problems in children with PTSD.¹²
- In a 2019 study, it was found that people with PTSD saw a reduction in symptoms when taking CBD capsules alongside traditional psychotherapy options.¹³
- A 2018 literature review suggested that PTSD was better treated when CBD was taken alongside THC.¹⁰
- As reported by Forbes, two recent studies have shown that phytocannabinoids can reduce activity in the amygdala and even help in erasing traumatic memories.¹⁴

What Cannabis Products are Best for PTSD?

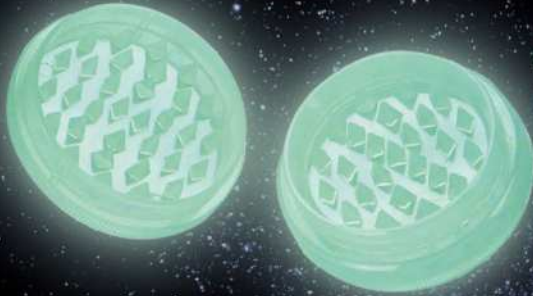
CBD products have had some of the best results in reducing CBD symptoms from the research we've gathered. This is likely because it doesn't cause psychoactivity and, therefore, there is no risk of inducing paranoia.

If you'd like to give CBD a try, we highly recommend an ingestible (i.e., tinctures/oils, gummies, other edibles) as they tend to last the longest period (around 6 hours). These are likely to be more beneficial for those looking to reduce PTSD symptoms throughout the day.

However, if you'd prefer to try THC, we recommend smoking Indica flowers at night. Indica is known for its sedating effects and has been useful for insomnia. Furthermore, some research suggests it may be able to help reduce nightmares.¹⁵

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Heady OG is a tribute to our fallen brother Nick B and has become one of our new favorite strains. This cultivar is pure fire, created with an extremely special O.G. cut crossed with our Gringo Loco male. Like many others, OG Kush has always been in our top 3 favorite flowers to smoke.

This unique pheno we call Nick B O.G. brings back that feeling of why we fell in love with Kush in the first place. Heavy gas/fuel aroma, beautiful solid explosive buds, and extremely potent effects. Adding to the recipe, we pollinated the Nick B O.G. with our male Vanilla Kush x Mendo Dope giving it a splash of candy terps, a stronger mold resistance as well as insane resin production capabilities.

This is a triple threat combination strain. Not only will the Heady OG get your attention just by the looks alone, but once you give it a taste and feel the effects, you will know why it is now one of our favorite strains to smoke.



WORDS & IMAGES BY MENDO DOPE



We are always in the lab creating new flavors or out on the hunt to find the best weed to smoke. Some people call it a high grade; some say it's top-shelf, but like our homie, Nick B always said, "where's all the headies"? That term has stuck with us since we were kids having smoke sessions in the backyards of our parent's houses. Only the best of the best quality herb can take on the name headies, Nick made that very clear every time something wasn't up to par. It has to be A+ at all angles from looks, terps, flavor, and high. We smoked hundreds, almost thousands of flavors together from the dispensaries and all of our own personal homegrown.

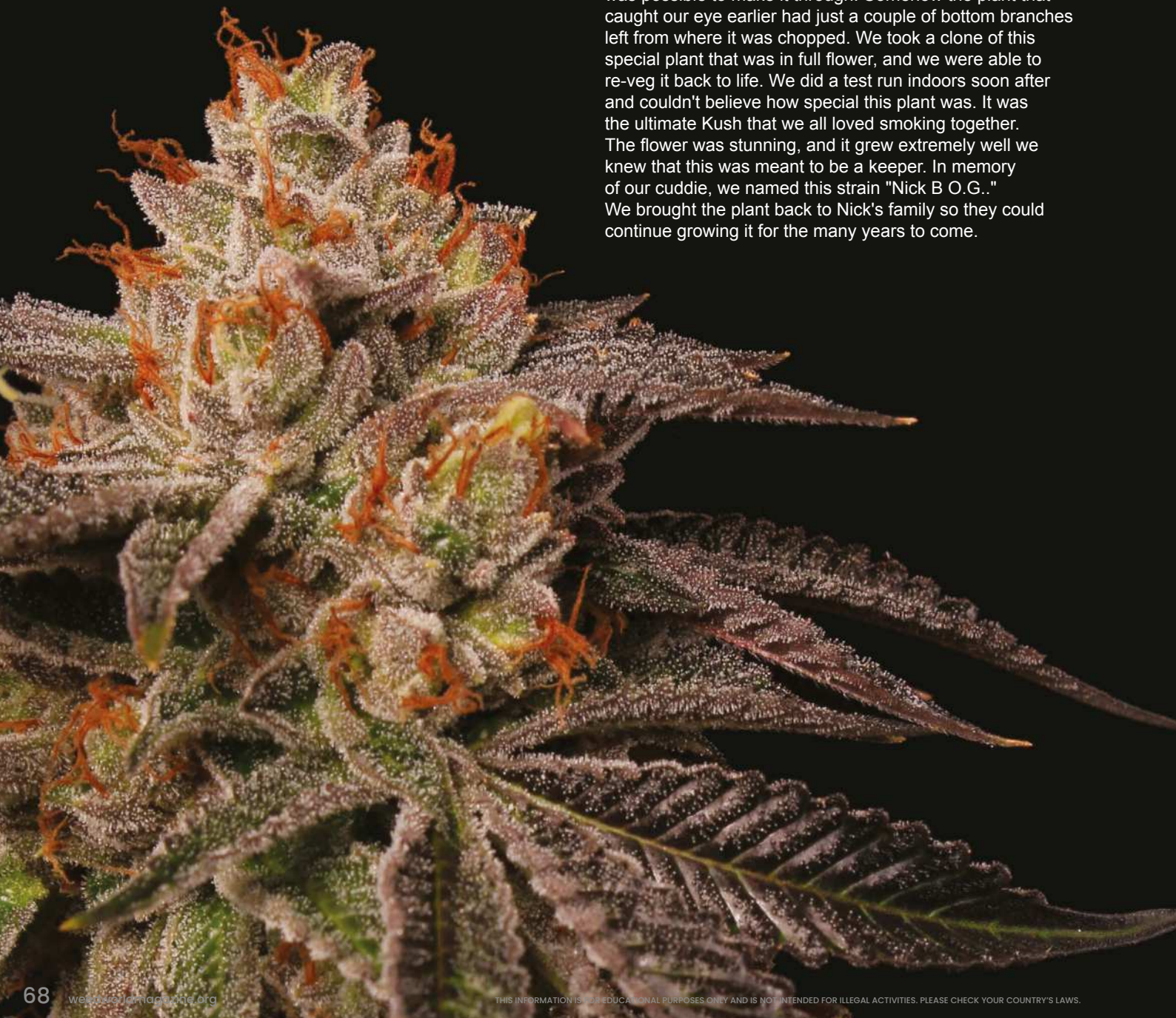
In 2019 we lost one of our best friends Nick B. Not only were we childhood friends, but Nick was part of our original music group, the N.O.Y.B. BOYZ, back in 2007. Since high school, Nick was a ganja farmer. He was one of the first people in the crew that grew his own garden, and he was also the one who introduced us to TGA Genetics. We had lots of great times in the studio, at concerts, on hikes, and eventually in both of our gardens. It was always so much fun checking out what we had done over the seasons and showing off new plants that we loved. We would share new strains that we were growing, and he would share new strains he was working on as well. We had a profound bond over cannabis and everything it brought along with it. Growing up together,

we all became real cannabis connoisseurs learning about all the different strains and flavors. Over the next 10+ years, we all had our own personal gardens, and we all shared a deep passion for growing.

Nick got into the art of breeding around 2016 and started making his creations with some of his favorite strains. In 2019 he worked on some new projects with his family and grew in his garden. Sadly, he passed away just months later. As harvest time was coming up, his family wanted us to check out the garden and help give them an idea of when to harvest.

The feeling of being there without him with us and knowing that this was the last garden he ever grew was very emotional. As we walked through the garden, it was packed full of so many delicious flavors, but one plant, in particular, caught Bleezy's eye. It was one of Nick's latest creations, and it was something extraordinary.

The following week, right before the garden was harvested, thieves raided it, and most plants were now gone. When we came back to check on what was left, it was devastating, and we were all in shock at the situation. Nick's family was now just trying to save what they could and do whatever was possible to make it through. Somehow the plant that caught our eye earlier had just a couple of bottom branches left from where it was chopped. We took a clone of this special plant that was in full flower, and we were able to re-veg it back to life. We did a test run indoors soon after and couldn't believe how special this plant was. It was the ultimate Kush that we all loved smoking together. The flower was stunning, and it grew extremely well we knew that this was meant to be a keeper. In memory of our cuddie, we named this strain "Nick B O.G.." We brought the plant back to Nick's family so they could continue growing it for the many years to come.



We continued working with this strain, and we wanted to bring it into our next breeding project to continue his legacy. We picked an excellent Vanilla Kush dominant male from our Gringo Loco strain and began our pollination process. For many years the Vanilla Kush has been a staple strain of ours that we love growing and has unique properties that not many other strains have. It is one of the most mold-resistant plants we have ever seen, and the terpene profile is unlike any other flower we have ever smoked. In addition, the resin production and quality of the Vanilla Kush are phenomenal. It is the perfect type of crystal for trichome collecting. With our 'It's Mendo Dope' genetics intertwined in the mix as well; we were introducing a wider spectrum of terpene production along with an added boost of vigorous growth. Our goal with this breeding project was to combine all of our favorite aspects of these flowers into one masterpiece. What was created could only be described as "Headies." This plant performed better than we could have ever hoped for; from the overall growth to the mesmerizing looks of the flower, this new creation was the fire! To keep our brother's legacy going, we named this new strain "Heady OG."

This is a great indoor plant and will also perform fantastic outdoors with its strong built-in mold resistance and early flowering traits from the Vanilla Kush. Traces of the 'It's Mendo Dope' help this plant rage in an outdoor setting and add delicious sweet terpenes along with vibrant colors. The Heady OG has an 8-week flowering time and can produce huge yields. The growth pattern is perfectly spaced, allowing every bud to reach its full potential and easily trainable. In the final weeks of flower, you will see a color transformation on the leaves that is phenomenal to see. Some phenos are very dark with deep greens and purple hues, while others pop right off the plant with bright green, yellow and purple patterns similar to tie-dye colors. Easy to harvest and trim, this plant produces more flowers and resin than anything

else. The terpenes are on point and will resonate on your taste buds, coating your nose and mouth with multiple layers of vanilla candy and race fuel. Smoking the Heady OG will make you feel like you're on another level. When you open the jar, you will want to eat it; when you break down a nug, you will drool as you inhale that sweet candy kush flavor, that will keep coming back for more. This strain has a very heavy high, ideal for pain relief and sleeping disorders. The stony effects penetrate the brain cells almost instantaneously, leaving your mind in a foggy daze. We recommend this strain for professional smokers looking for the next top exotic flower.

We didn't call this strain Headies for nothing, it truly is what we like to call the best of the best, and we are very picky judges. If you're looking for a new flavor to grow, you can find this strain now on plantersofthetrees.com for more info on what we have coming up next, visit us online at mendodopefarms.com.

Strain: Heady OG

Breeder: Mendo Dope

Genetics: Nick B O.G. x Gringo Loco

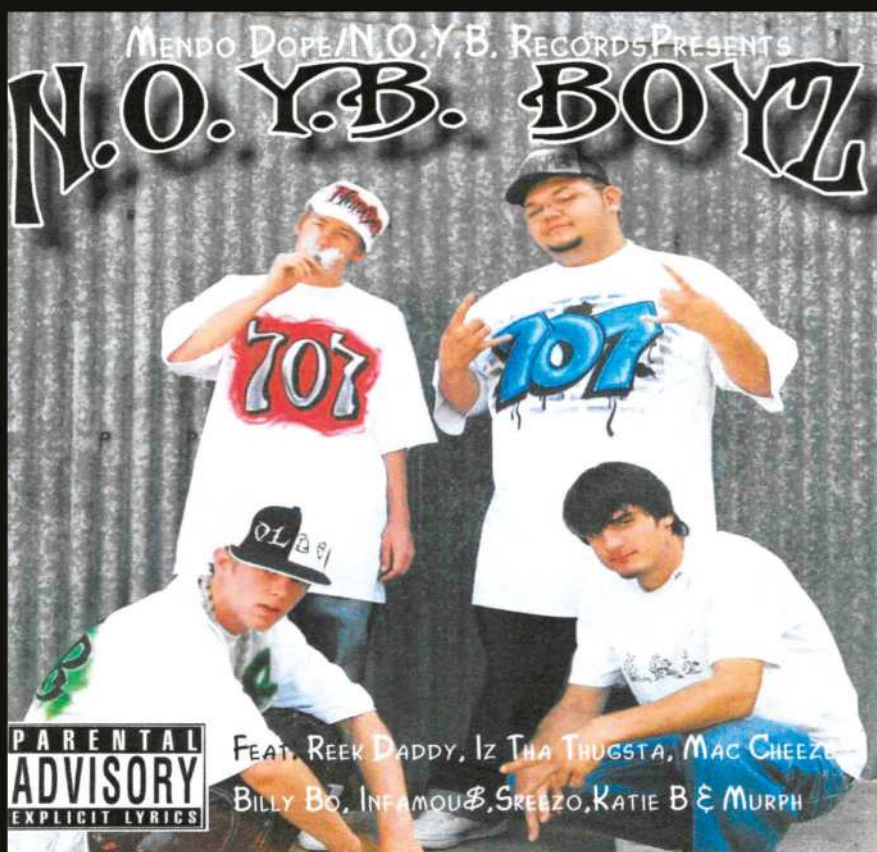
Yield: Heavy

Harvest: 8 to 9 weeks

Indica: 60% Sativa: 40%



**Clockwise from above:
Mendo Dope and Reek
Daddy; NOYB Boyz, 2007;
2010 Hightimes Cup.**



Sammy Mayfield Pierce

APRIL 1948 – SEPTEMBER 2019

communitybiorefinery.com | hemp-biorefinery.com

Who is Sammy Pierce; why should I read this article, and what has he got to do with *Weed World*? Why does Sammy Pierce matter to us? This is the second in a series of articles discussing the Community Biorefinery and its Hemp-BioRefinery division first described in issue 154 *Weed World* (page 60: "Has Cannabis/Hemp's Day Finally Arrived?").



Sammy Pierce embodied all that evolved into what we now call Community BioRefineries (CBR). Sammy called himself an Applied Scientist because of his talent to look at ideas or developments of others and apply them in ways not originally envisioned or designed. He liked to compare himself to Thomas Edison in that Edison described his development of the light bulb as finding 10,000 ways how NOT to make the light bulb and knowing when he had accomplished the task. Sammy discovered more than a thousand ways how NOT to make what we now call the CBR process work and finally recognized the 'aha' moment when it all came together. Much of Sammy's success came from his ability to think "outside the box." He lamented that PhDs and engineers were trained in a particular way to solve problems and create solutions – which is why none of the dozens of PhDs and engineers could ever figure out how to make the process work. It took his ability to think outside the box to make the process work finally.

Much of the equipment included in the CBR process was sourced from other industries using these same pieces of equipment for totally different purposes. Some from the dairy industry, some from the pharmaceutical industry, others from wineries, some from microbreweries, and yes, some is pretty much 'off the shelf' with multiple uses. But qualified Sammy Pierce to do all this? Sammy's fingerprints are all over them.

In 1980, Mr. Pierce founded EnerGenetics, one of the U.S.'s oldest alcohol fuels research companies. In USDA-sponsored publications, EnerGenetics is considered one of the original pioneer companies in alcohol fuels research and development in the U.S., where Mr. Pierce served as EnerGenetics' Chairman and CEO.

Since 1980, Mr. Pierce sponsored over \$10 million on alcohol fuels research in 16 different pilot plants, which involved over 100 PhDs at 12 major universities, the DOE's Oak Ridge National Laboratories, the USDA's Agriculture Research Service facilities in Philadelphia and Ames, IA, and the Department of the Navy at Woods Hole, MA.

EnerGenetics also received 3 grants from the USDA, 2 from Iowa, and one from the U.S. Department of Energy.

In 1980, Mr. Pierce and Professor Morris Wayman, Chairman of the Department of Chemical Engineering at the University of Toronto, co-invented the world's first biodiesel fuel made exclusively from organics; the two researchers received a patent entitled "Diesel Fuel by Fermentation of Wastes." In 1985, Mr. Pierce received the federal trademark for the

term 'Bio-Diesel Fuel' T.M. EnerGenetics held or controlled over 15 critical biofuels patents in collaboration with the USDA and four major universities.

Research Presentations, Papers, and Affiliations

EnerGenetics was invited to participate in the famous ONAMI Engineering Center at Oregon State University in Corvallis, OR, where EnerGenetics co-sponsored millions of dollars in biofuels research. EnerGenetics sponsored research at the Ohio State University, the USDA's Eastern Regional Research Center, the University of Hawaii, and Louisiana State University.

Since 1980, Mr. Pierce's work in biofuels was featured nationwide on the PBS radio and television networks where he was a monthly guest commentator on biofuels developments in the U.S. He also wrote and produced a documentary entitled "Biofuels: A Development in its Infancy" in 1986, which featured the famous and Oscar-nominated actor, WWII veteran and Silver Star recipient, the late Mr. Eddie Albert – a close friend and an EnerGenetics investor. Mr. Pierce's biofuels research has also featured UPI and A.P. networks, MSNBC, Forbes, the Wall Street Journal's Dow Jones Market Research, and dozens of newspapers nationwide. Internationally, his work has been featured in Mother Earth News, High Technology magazine, Food Engineering and Food Process Design magazines, and other international trade journals.

Mr. Pierce presented papers at international symposiums like the National Corn Growers Association, the International Institute of Food Technologists, the National Association of Chemical and Biotechnology Engineers, the Engineering class at the University of Louisiana, and the International Biopolymers Research Institute.

I know by now you are probably wondering, "What does this have to do with *Weed World*?" but let's take a step back for a moment. As most know, the word 'weed' is urban slang for "marijuana" and Cannabis. Weed refers

to parts of or products from the plant *Cannabis sativa* that contain substantial amounts of tetrahydrocannabinol (THC). THC is the substance primarily responsible for the effects of Marijuana on a person's mental state. Some cannabis plants contain minimal THC, but what is not mentioned is that Cannabis has been traditionally an incredible biomass crop with a million uses. Sammy Pierce was an American Inventor, Scientist, Creator, and one of the Founding Fathers of what we call the Carbohydrate Economy.

Marijuana or Weed has been used for medicinal purposes and as a product to achieve a euphoric effect. Ancient Chinese writings describe its usefulness in treating rheumatism, gout, malaria, and, oddly enough, absent-mindedness was documented by Chinese Emperor Shen Nung, the Father of Chinese Medicine. A Chinese medical manual dating back to around 2700 B.C. makes the first reference to Marijuana was being used.

Cannabis is an ideal crop for the Carbohydrate Economy. Cannabis has been used in a myriad of products for over 1000 years, and it was only 100 years ago that plant matter was the basis of almost all products. Sadly, technology and politics kicked that all to the curb – until now.

Father of the Carbohydrate Economy

This is a limited/focused view on which goods and services are produced, sold, and bought in a community. When we think of the "Carbohydrate Economy," the first product that comes to mind is Biofuel. Also known as agrofuel, they are mainly derived from biomass or biowaste.

Biofuel is a term for fuel produced through contemporary processes from Cannabis biomass, rather than by the very slow geological processes involved in forming fossil fuels, such as oil. Since biomass technically can be used as a fuel directly, some people use the terms biomass and Biofuel interchangeably. For our purpose, the Biofuel we are focusing on is BioButanol - the next-generation Biofuel.

To be considered a 'father' of a particular field or invention, he must impact the world. Often discoveries and innovations are the work of multiple people, resulting from continual improvements over time; however, specific individuals are remembered for making significant contributions to the birth or development of a technology field. Enter Sammy Pierce. Let us introduce the Founder of the Community BioRefinery with its Hemp-BioRefinery division, Sammy Pierce. By focusing the CBR's (mentioned earlier) technology applications vertically integrated manner, every molecule of the Cannabis plant can be - used from root to bud.

Sammy certainly had the 'chops' to create something unique and beneficial to us all. To be honest, his original focus was on creating the best possible Biofuel. It became apparent that ethanol (originally called "gasohol") was not it. Ethanol had too many issues to deal with to make it useful Biofuel; the result was an increase in name-calling by any corn growing organizations which felt his evolved position threatened their single-minded focus. This gave rise to his "food vs. fuel" perspective, which also helped him focus on using all the plant material (not just the sugars and throwing the rest away**). The evolution of his perspective is what we today call the Community BioRefinery process.

**During a decision with an early ethanol producer, Sammy asked what became of their Dried Distillers Grains (DDG). The response was that he intended to ship it all "to the third world countries for food supplements." Sammy was astonished and pointed out that DDGs are poisonous to humans; the producer replied that he would instead feed it to 'farm critters.'

Once Sammy was no longer laser-focused on just biodiesel fuel using only soybeans as the feedstock, it allowed him to consider alternate methods of reducing the feedstock material to maximize what he could get out of it. The USDA not-so-subtle urged him to consider corn as a possible feedstock. Sammy initially resisted, but when it became clear that the process would yield far more than just sugars for fermentation of biofuels, a whole new series of light bulbs came on for him. He could now tangibly address the food vs. fuel issue head-on. He could now separate and recover a feedstock's food components without damaging them yet still enable the sugars to be fermented with all their subsequent tangible benefits.

Because Sammy's process had developed to enable the reduction of any feedstock or biomass down to micron-sized particles without any heat or chemicals, those particles were recovered completely intact and pristine. The food components possessed nutritive values never seen before and created an entirely new category for the process – 'nutraceuticals' (foods that act like medicines). The fermentation reactor could be tweaked to make food-grade organic chemicals or biofuels. Depending on how long the sugars are left in the reactor, it would produce ethanol or bio-butanol, which Sammy had been after all along.

Sammy knew that bio-butanol was the key to creating what the industry calls the "Next Generation in Biofuels." Bio-butanol has been known since before the second world war. When the British were blockaded and could not import any petroleum, they had to think of something fast. Their solution was to use bio-butanol to fuel their fighter planes that held off the German Luftwaffe during the Battle of Britain. After the war, oil was again a nickel a barrel, so no one cared about bio-butanol after that. Sammy later came along, dusted off the old research, and again worked to resurrect and improve upon it – which he did.

For a bit of supplemental reading, go to the United Nations UNESCO – the U.N. division for the Educational, Scientific, and Cultural Organization division and look up "The Next Generation in Biofuels – A New Approach to the Production of Biofuels" by S. Mayfield Pierce. Find it at www.eolss.com/energenetics.

So now, the process that Sammy had developed had a "food side" and a "fermentation side," each producing additional end-item products because their base products were of such high quality. While many wanted to apply his process, Sammy found that some were only interested in the food side; others were only in the fermentation side. He repeatedly tried to explain that his vertically-integrated system called for each step to 'feed into the next, which is how so many co-products become possible. Skipping or eliminating various stages increases production costs, creates a waste stream that has to be dealt with (to avoid visits and fines by the EPA), and misses out on so many other revenue-generating aspects. It also cleans itself up as it goes along, resulting in hyper-pure water.



But what has any of this to do with hemp/cannabis?

We'd had numerous requests to run Cannabis through the process to see what sort of products we could elicit from it. Unfortunately, at the time, it was still illegal to do R&D on hemp/cannabis/marijuana (let alone transport it), so we had to pass (particularly since the USDA (i.e., federal government) was one of our technology partners). Later, when Sammy was satisfied that our R&D had resulted in something that could be commercialized, we set about to do precisely that.

Just as we were on the cusp of commercializing, one of our past R&D investors decided it was the perfect time to take over the company for himself. He almost succeeded; however, our nemesis did not count on a group of dedicated past investors banding together to create a legal defense fund. All sorts of bogus claims, accusations, and insinuations were made. The opposing attorneys used every trick to keep the action open to run up the legal bills and bankrupt the company and everyone affiliated with it. Eventually, all the claims were withdrawn, and the judge (who had also become tired of it all) enabled the company to reorganize and press on. Community BioRefineries was born.

Unfortunately, after over five years, the constant stress on Sammy began to take its toll. Principal among those signs was his development of cancer. As befalls many cancer victims, Sammy's appetite began to diminish, and he could not sleep properly. Sammy and several senior members knew of the process's ability to separate and recover specific plant proteins, which could reverse the appetite/weight loss conditions known as 'cachexia.' Sadly, nemesis managed to disrupt everything so much that we could not readily provide these special proteins to Sammy. Concurrently, Sammy was aware of the widespread claims

of what CBD and medical Marijuana could potentially do for him. He conferred with his then Chief Operating Officer and Chief Technology Officer to do what they could to include hemp/cannabis into the roster of source materials for the CBR process.

Sadly, Sammy did not survive to see it happen. Not long after Sammy's Memorial Service, our CTO was approached by several California vintners who had lost significant portions of their grapevines in fires. As it can take up to 20 years for new vines to mature enough to be productive, they had decided to plant Cannabis in the ravaged areas to help provide a hedge against the loss of their vines until they could be effective once again. It was initially working out, but when composting the 'waste' materials, the California EPA swooped in, directing them to use approved disposal entities or face substantial fines. The tipping fees nearly wiped out what they had earned, motivating them to look for an alternative.

Sammy's circumstances and admonishment fresh in their minds, the CTO and now new CEO set out to see what they could/should do to formally include hemp/cannabis as standard source material. The results of their research were astonishing. So much amazing information and the material was available that, instead of amending the Community BioRefineries website with this information, they created a stand-alone website for the "Hemp Bio-Refinery" (or HBR). The HBR has been integrated as a division of the CBR. It may have been long before the HBR would have been born had it not been for Sammy Pierce to get the ball rolling.

Community BioRefineries:
communitybiorefinery.com

Hemp Bio-Refinery:
hemp-biorefinery.com



Hemp-BioRefinery

NEWS | Israel

By Ziv Genesove

Israel to Look into Legalizing CBD

The Israeli Ministry of Health has begun discussing the case of making CBD legal and calls on the public to submit positions on the issue.

Following the decision of the Israeli Minister of Health, Nitzan Horowitz, and the Director-General of the Ministry of Health, Prof. Nachman Ash, a CBD committee, headed by Prof. Shuki Shemerwas, recently established and began to examine the meanings of such an step.

"The mandate given to the committee is to examine the implications of removing the CBD component from the Dangerous Drugs Ordinance, so that it will be possible to market CBD products in Israel, with an emphasis on food products and cosmetics," the local Ministry of Health announced in a statement.

The minister further stresses that "the committee does not discuss aspects of medical treatment through CBD, Or terms of the legalization of cannabis". That is to say, they will debate on the CBD issue only as a food supplement. The main question that will probably be discussed by the committee is whether to exclude the CBD molecule itself from the Drugs Ordinance or allow a legal "Hemp" market, which will include any cannabis product containing less than 0.2%-0.3% THC.

The difference between the two is very significant because in the first case the CBD molecule, which has no psychoactive effects, will be legal as a food supplement and various products, while in the second case it will be possible to market products that also contain other cannabinoids in addition to THC.

for instance, A "full-spectrum" CBD oil, meaning having a wide range of cannabinoids ("entourage effect") and not only CBD has been found in studies to have a better effect in relieving patients suffering from epilepsy compared to oil that contains CBD only.

On the other hand, there are Cannabinoids besides THC, which also have a psychoactive effect - for example, THCV, and therefore it is likely that there will be those in the Ministry of Health who will prefer to allow the marketing of the molecule CBD by itself.

Another question that is expected to arise is whether only imports will be allowed or local manufacturing will also be permitted. As well as the inquiry of whether it will be possible for medical cannabis manufacturers in Israel to produce CBD products designated to the recreational market.

In any case, it is unlikely that the Ministry of Health will allow production and marketing as a food supplement of hemp inflorescences (cannabis with less than 0.3% THC), as occurs in Switzerland, Italy, Greece, and other countries in Europe.

It should be noted that about a year ago, in December 2020, the Health Committee had already discussed the issue of the exception of CBD from the Dangerous Drug Ordinance, but due to several reasons (mainly administrative), the process did not materialize. Many in Israel now hope that the current attempt will bear fruit. ■

Cannabis Farm Manager Suspected of Stealing

An indictment has been filed against Oren Faraj, the manager of the Israeli cannabis farm "Univo", on suspicion of stealing 4.5 kilos of cannabis inflorescences.

Since the current indictment does not yet include drug dealing offenses, the judge released the suspect under house arrest. Questions that arise from the event: What were the suspect's motives and what are the implications for the future of the farm's activities?

Oren Faraj, manager of "Univo"'s cannabis farm and co-holder in 26% ownership of the company, had been recorded by security cameras as he takes bags of cannabis from the vault room and transfers them to his private vehicle.

The police originally suspected that Faraj, who is, in fact, the landowner of the plot in which the farm is located, allegedly handed the goods to another person, located in a neighboring village, that got arrested as well.

However, this clause was removed from the indictment eventually, since the cannabis found in the neighboring village added up to "only" 620 grams - not close to the quantity that has been stolen from the farm.



According to the indictment, "on 02/11/21 at 8:30 AM the suspect approached to one of the farmworkers and asked him to pack two bags of cannabis, weighing a pound each, and store them in the vault of the farm. At 9:30 the suspect entered the vault while wearing gloves, picked up the bags which

were placed in the room and contained cannabis weighing approximately 4.5 kg, put the packages inside a black bag, and moved the black bag to the next room. At 17:00 he took the bag out of the room, placed it inside a vehicle's trunk, and drove off.

During the police interrogation, the suspect admitted that indeed he took cannabis out of the farm's property, but he argued that the amount was only 2.5 kg and claimed that he threw the cannabis in the trash.

The question of the motive for the alleged offense is very interesting since as far as is known the suspect is not short of money, so it is not clear why he should risk such a serious offense.

Another interesting question is what will be the fate of the farm's license since under Israeli law there is an obligation that the owner of the plot in which the agricultural business resides, in this case, Univo's cannabis farm, will own at least 26% of the business. Today, Univo company holds 51% ownership of the farm, Oren Faraj (the suspect) holds 26%, and the remaining 23% is held by "Avisror group". But in case that Faraj will be convicted, and if he will refuse to transfer his rights to Univo, it seems that Univo might have a problem with continuing running the Cannabis farm.

SCALING UP

with Automation

End of the Year Post-Harvest
Processing Equipment Audit

By Cullen Raichart

When canna-businesses are nearing the end of the year/season, operators evaluate what worked well that year and what could be upgraded or expanded for next year. Businesses in both emerging markets and more well-established markets across the globe are wrestling with similar problems.

How do you get the most high-value final product out of your raw material, how do you maximize ROI, and how do you cut down on waste to minimize product loss and maximize profits? These are the key questions regardless of the size of your operation. The questions are the same, but the solutions are different depending on your operating scale.

For smaller operators, it can be daunting to decide to purchase that first piece of post-harvest processing equipment. At first look, the cost can appear high, but they soon realize the benefits once they leap and see how much they save in time and labor costs. The most significant gains across the board will be seen by automating trimming first. This can cut processing costs by one-third to one-half, which amounts to a substantial return on investment considering trimming machines typically ROI out within 30 - 60 days of purchase.

Automating your trimming process saves a massive amount of time, and with the technology of today's trimmers, the final product quality is high. With the price drops we've seen this past year in most established markets and the increase in the number of competitors, it is no longer a question of if but how and to what extent you need to automate. If the target market is top-shelf, craft flower, some may decide to machine trim initially and then hand-finish. Machine trimming to either 70% or 80 %, and then hand trimming the remaining 20-30% increase efficiency without losing the look and feel of the final product. This approach allows the time spent by your employees to be focused on the details of the final product rather than on the more cumbersome, time-consuming process of the initial trimming. Even small operations in the craft market producing 500-1000 Kilos per year find no way around automating a portion of their trimming process.

The technology available today surpasses anything we have had in the past and allows for a much higher level of product control on all fronts. Today's trimmers can be preprogrammed for specific strains to ensure maximum post-processing biomass, resulting in maximum profits. Those looking to scale from small to medium or medium to large often employ side-by-side automated trimmers to up throughput, simply adding trimmer one at a time as they expand. This is an easy way for those producing 1000-2500+ Kilos per month to up production quickly. The way you would trim Wedding Cake differs markedly from how you would trim Rainbow Sherbert, for example.

After automating trimming, the next step to evaluate is your sorting process. Midrange and large producers benefit significantly from mechanized sorting. Depending on how many different product grades or types of products you produce, this part of the process can be a potential bottleneck slowing down productivity and costing valuable time and money. Beyond gains in efficiency, mechanized

*GreenBroz Model M
Dry Trimmer in action*





GreenBroz Model M Dry Trimmer

sorting enhances quality by minimizing the time your raw material is exposed to a challenging environment to regulate temperature and humidity. Minimizing human touchpoints also significantly reduces the risk of contamination, leading to losses that are especially difficult for the smaller operators to absorb. Sorting quickly and carefully protects the delicate and highly valuable trichomes, cannabinoids, and terpenes. It also funnels raw material to multiple processing streams such as grinding/pre-roll production and extraction as fast as possible, keeping your production line at maximum efficiency. As legalization sweeps, the globe consumers are getting savvier. You simply can't compete if you put out a product that is not taken care of properly during post-harvest processing. If you are producing three or more different grades or types of products or are looking to expand your product offerings in 2022, mechanized sorting is a must.

After addressing your sorting protocol, looking at how you move raw material between stations is a good idea. Are you spending too much employee time moving products between processing stations? If so, adding a mechanized conveyor system to enhance throughput and workflow is a good idea. Automating the feeding of machines removes some unpredictability and adds another level of consistency. This allows an employee to oversee the production line but eliminates direct human contact with the product. As the industry matures and markets become more established, this technology will become ubiquitous across the board.



GreenBroz Model M side-by-side large-scale system schematic



Model M Dry Trimmer, Rise Conveyor, and Sorter

General cleanability and ease of assembly and disassembly of all your automated equipment is another area that warrants careful consideration. Time spent cleaning equipment is time not spent processing. That downtime can cost you. Your employees are working, but your production line has come to a complete halt. If you have had any contamination issues at your facility, upgrading to machines where all plant-touching surfaces are 316 surgical-grade steel is a smart move and meets Good Manufacturing Practices (GMP) guidelines.

Suppose you are running a large-to-huge facility processing in the neighborhood of 1000 + Kilos per day. In that case, you are looking at needing a complete, integrated end-to-end automated system that runs 24/7 and collects strain-specific data in real-time. At this scale, you will be automating as much of the process as possible and looking to customize your system to the specific needs of your unique facility. In this case, the production line looks like what we see in the traditional agricultural sector. Raw material goes in one end, and fully packaged, shelf-ready products come out the other end.

For large multi-state operators (MSOs) like we see in the U.S., having high product consistency and having standardized operating procedures (SOPs) is essential to having a stable, scalable business. This gives the added benefit of having your managers and production line workers be completely interchangeable between facilities should you need to shift personnel around to meet demand in a specific area. You would just go to a complete system approach right out of the gate at this scale.

As you consider the 2022 outlook for your business, having a post-harvest automation plan that can be executed in stages is a good strategy. This allows you to respond to the fast-changing cannabis market and pivot quickly should competitors be nipping at your heels. The only thing about the cannabis market that is certain is its fast-moving nature. You need to be ready to follow the market and set up production to take advantage of market opportunities or mitigate risks that may develop very quickly. The old adage, "expect the best, plan for the worst," certainly applies here.



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CAROSI**



cooking with **carosi**

It seems that the ubiquitous avocado toast has officially hit cult status. Living a state away from California, I anticipate the spring avocado season all winter long. I also grew up eating his garden-grown peas as his mother told him to. For me, spring is always a blast of green after the long drab winter. And these avocados and smashed pea toasts are no exception – an explosion of green...! Packed full of green, fatty smashed avocado, crushed poppin' fresh peas, brightened up by a splash of freshly squeezed lemon juice and set off by sea salt flakes and a piquant cannabis olive oil drizzle. The rest of the greens and things were easily gathered from my backyard garden, including the micro cilantro and mint shoots, the radishes I shaved, honesty flowers and pods, the young cannabis leaves, and the pea vines and tendrils. If you can, try hard to find the honesty (*Lunaria*) flowers and pods. They are completely edible and pack a beautiful spicy punch that helps balance that fatty avocado. Young tender cannabis or hemp leaves are a wonderful addition to anything you would consider using spinach or arugula in or on, especially garden-grown salads and avocado toasts. For me, true quality greens are raw cannabis or hemp greens. Recently the super-intelligent science and food world has been able to do more studies and research and has given us some awesome preliminary data on fresh, raw, cannabis, and hemp leaves. And as a lover of greens myself, it is also great to see dozens of small farms popping up across the country, venturing into growing cannabis and hemp leaves for salad. I've been fortunate enough to have been involved with several of these farms and have loved to see their growth and biodiversity in adding raw cannabis and hemp greens to their crop rotations. When we look at the cannabis plant from a nutritional

Sativa Smashed Cali Avocado + Pea Toasts

standpoint, whether India, Sativa or ruderalis, it's more a "leafy green" than a "weed." The leaves are full of iron, zinc, potassium, magnesium, fiber, and phosphorous. Raw cannabis is also full of polyphenols, potent antioxidants and is rich in Omega-3 and Omega-6 fatty acids. Raw cannabis contains 18-20% raw cannabis protein, CBDa, THCa, and a ton of terpenes, including limonene, myrcene, pinene, and linalool, to name a few. Some research doctors believe that raw cannabinoids help activate the endocannabinoid system more effectively than dry-cured cannabis. As a culinarian, I love knowing I'm getting a powerful punch of raw green nutrients and bright piquant flavor addition to whatever dish it is included in. Eat your greens, pretty please, with avocado on top.

recipe

prep time: 20 minutes

yield: 4 servings

total THC/CBD: depends on
potency of product used

status: killer green toasts

cannabis pantry: cannabis
butter, cannabis infused hot
sauce, infused olive oil, fresh
young cannabis leaves

strain recommendation:
cali orange

equipment needed

2 medium stainless-steel mixing bowls, large fork,
mandolin, chef's knife, cutting board, toaster, butter knife,
serving platter or plates.

provisions needed

4 pieces thick cut artisan sourdough bread
2 tbsp cannabis butter (made in the mb2e)
1 cup fresh peas
2 just barely ripe avocados
1 tbsp fresh squeezed lemon juice
1 tsp cannabis infused hot sauce (made in the mb2e)
1 tsp jacobson sea salt
½ tsp fresh cracked black pepper
2 tbsp cannabis infused olive oil (made in the mb2e)
1 cup fresh young cannabis or hemp leaves
1 cup fresh young pea vines or tendrils
¼ cup shaved radishes
¼ cup micro cilantro leaves
¼ cup honesty pods (lunaria)
12-15 honesty flowers (lunaria)
1 tbsp tiny mint leaves
2 tbsp toasted hemp hearts
several pinches fine ground red chili flakes
several pinches wild fennel pollen (optional)

how to make it

- in a bowl with a fork smash the peas roughly.
- peel the avocado and in a bowl with a fork then smash.
- mix the smashed peas, smashed avocado, fresh lemon juice, cannabis hot sauce, cannabis olive oil, and a pinch of salt and pepper.
- toast the 4 pieces of sourdough to your desired doneness, butter each piece evenly with the cannabutter.
- top each piece of toast with a few fresh cannabis leaves and pea vines.
- top each piece of toast with a mound of avocado and pea mix, dividing evenly between all 4 pieces.
- now, adorn each piece of toast with an even amount of each: cilantro, honesty pods, mint leaves, hemp hearts, chili flakes, fennel pollen, shaved radishes, and flowers.
- sprinkle each toast with salt and pepper.
- serve and enjoy with utter delight.

Equipment and product sources

www.jacobsensaltco.com (local sea salt)

www.magicalbutter.com (mb2e botanical extractor)

Chef Sebastian Carosi: A Short-order Cannabis Revolutionary

Sebastian Carosi is a farm-raised, old-school culinary professional with over twenty-five years in the restaurant and hospitality industry and a pioneer in the country's 'farm 2 fork' movement.

Chef Carosi is an avid Pacific Northwest forager and wildcrafter, living off the grid for several months each year in the foothills of Mount St. Helens. These wild edibles are expressed throughout his hyper seasonal menus.

While he has been cooking with cannabis since the mid 90s, Chef Carosi currently offers his expertise to the cannabis industry in the form of cooking with cannabis educational culinary demonstrations, product research & development, cannabis production kitchen design and upfits, production kitchen staff training, standardized recipe development, terpene fortification, dosage calculations and formulas, production schedules and staffing needs, production equipment training, conference cooking demonstrations, full spectrum cannabis consumption, responsible diabetes control through cannabis, private cannabis dinners, cbd and terpene-fortified cocktails and mocktails, everyday cooking with cannabis and the health and nutritional benefits of cannabis in your kitchen.

#shortordercannabisrevolutionary - IG: @chef_sebastian_carosi
Twitter: @chefcarosi | Weedtube: @chefcarosi



WOMEN *of* WEED WORLD

by Sharon Letts

Halle Pennington, Humboldt Seed Company

Halle Pennington is a second-generation legacy farmer in Humboldt County, California, now groomed to fill her father, Nat Pennington's shoes.

Humboldt County in Northern California is synonymous with cannabis. Referred to as the cannabis capital of the world, the Emerald Triangle that makes up Mendocino, Humboldt, and Trinity counties farm many of the cultivars we know and love, created in its fertile redwood composted soil.

Nathaniel "Nat" Pennington founded the Humboldt Seed Company to provide stable, high-quality genetics for himself and local cannabis farmers. He began growing cannabis within the medical market in 1997, one year after California legalized the plant as medicine.

As many have done before him, Nat started growing cannabis to support his family in the economically depressed region, then turning to seed production to ensure his seeds were reliable for the next crop.

His company has become one of the most widely known and trusted seed producers in the country, if not the world.

But Halle's story began in a commune deep in the woods of Humboldt.

A twinkle in her daddy's eye

My mom and dad were living in a commune or group home called Black Bear Ranch," she explained. "It's still there, two hours past the Salmon River. It was an old mining claim they took over and made into a kind of commune. That's where I was conceived."

Her mother, Nicolle Morris, was an activist working to save the redwoods. After hooking up with Nat at the ranch, they decided their paths differed. Nat was just getting involved working for the fisheries, and Morris left for Alaska to lay down in front of logging trucks protesting clear-cutting. She was in a remote logging area when she noticed her moon cycle had skipped a beat.

"We still have the letter she wrote my dad letting him know she wouldn't be able to do a pregnancy test until she went into town," Halle continued. "In the letter, she told him she had a dream that she gave birth to a girl, and she told my dad to think about what they should do."

Once the test was confirmed cheerful, Morris made her way back to Humboldt and Nat's arms, and the rest, as they say, is history.

Born Into It

Halle came of age in the hills of Humboldt County, nurtured in a tight-knit farming community. She learned to respect the river and the forest from Yurok Tribe members.

"Life was simple up in the hills," she shared. "I was able to learn at my speed in a small 25 student rural school. When we moved down to Arcata to live in the town, I started attending Arcata High School and surrounded hundreds of kids with so much drama. It was a rude awakening from the life I knew."

The City of Arcata is a progressive town known as "60s by the Sea." Its population hovers around eight thousand when Humboldt State University isn't in session, raising it to around 16,000. But to a young person who only knew hill life.

Stress set in and the 14-year-old was eventually diagnosed with anxiety, depression, and regularly scheduled visits with a therapist.

"I had started sneaking smoking cannabis behind my mom and dad's back when I was 13," she shared. "I grew up around weed and alcohol, but alcohol didn't interest me. I was suffering from both day and nighttime anxiety and related insomnia. I'd tried prescription medications, but they left me feeling like a shell of a person - made me numb, I didn't feel anything."

Soon she figured out that cannabis calmed her more than the pills, and she began exploring different cultivars for relief.

"I fell in love with Blueberry Muffin," she said. "It has this mellow, uppity high that keeps my head from spinning in circles. I find that it gives me the help I need. If I smoke a bowl and have an exciting project, it gives me energy. If I'm a bit tired, it makes me more tired. It's quite remarkable in that way. The wisdom of the plant seems to deliver what I need."

Halle isn't too far off from the theory that the beneficial compounds of healing plants like cannabis send what the body needs, where it needs it through the endocannabinoid system - the vehicle in which all our biological systems are fed.

Developed in 2009, Blueberry Muffin was developed by Humboldt Seed Company and has become its signature cultivar. Having the uncanny flavor of a blueberry muffin - the flavor of which is found in the terpenes. In that order, the prominent terps in Blueberry Muffin that make up the flavor profile are caryophyllene, myrcene, and limonene.

"I generally smoke for the terpenes, not the THC," she added. "I enjoy a practical high, and I'm not one to get super stoned. My favorite way to consume is by smoking a doobie or hitting a bong with sungrown flower - because the terps are so flavorful with outdoor-grown in the sun, there's no comparison. I may do an edible if my insomnia is bad. That's what's so great about cannabis; you can choose your adventure!"

Adventures aside, longtime Emerald Cup judge, Swami of Swami Select of Mendocino informed that the cup winners have never won for the highest amount of THC (pun intended), but for the full terpene and cannabinoid profile. Flavor, not recreational value, is coveted in the cannabis capital of the world.

Schooled in Cannabis

Timing is everything, and Halle said that if legalization didn't happen when it did, she might have chosen another working path altogether. It's important to note how unique it is for a young woman to have a legacy such as Halle's - to have genetic knowledge handed down to her in this way. Halle added that it wasn't always this easy to get the information first.

"When my dad was coming up in farming cannabis, he didn't have the internet to search for information," she explained. "All they had was word of mouth, and most farmers up here were tight-lipped. You had to gain trust to succeed. Now, both colleges up here have extensive courses in biodynamic farming practices - the same practices my mom and dad used to grow organic food in the commune where they met."

"All they had was word of mouth, and most farmers up here were tight-lipped. You had to gain trust to succeed. Now, both colleges up here have extensive courses in biodynamic farming practices..."

Cannabis farmers graduating from either HSU or CR are nothing short of scientists in the field, with many staying in Northern California, becoming part of the cannabis industry. HSU also allows graduates to design their degree and curriculum, which works well when studying business with biology and agricultural

practices. Custom made for the cannabis industry that crosses over into just about every single industry there is.

Economics of Weed

The challenge has become making a living in the legal market. Gone are the three to four thousand-dollar pounds once found in the medical market, let alone the five to six thousand a pound from the illicit market back in the day.



Halle Pennington and her father, Nat Pennington

Promised \$1200 a pound when legalization took hold, in the end, the farmers to the north were offered a mere \$400 a pound - not enough to subsidize the crop of a small, legacy farmer.

When food farmers can't sell their crops for a living wage in mainstream agriculture, the U.S. Government subsidizes them, keeping them afloat another year. The cannabis industry is the ugly stepchild where fairness in wages is concerned, with nary a helping hand from the government who has the plant listed on Schedule 1 next to heroin - stating no medicinal value whatsoever, causing it to remain federally illegal. The cause and effect for legal states are highly hypocritical, as the plant touches every business in its wake, affecting many - even those who never feel the plant.

"The reality of Humboldt and the cannabis industry in Northern California in general is, no matter what you are doing to make a living, you are somehow benefitting from the cannabis industry and the revenue that follows," she informed. "This industry has kept local shops alive for decades. If a school needed something done, a farmer would step up. Now, with the low rate per pound and the extremely high taxes charged in California, the community is hurting in general."

Unable to be civic-minded without proper reimbursement, the trickle-down theory has never been more apparent to the region. The cannabis industry in general needs

to acknowledge the legacy farmers to the north and all that implies, including admitting that outdoor, grown in the sun cannabis in the organic craft cannabis market is superior to large-scale cannabis agriculture, and reimburse accordingly.

"The only way these farmers will survive is to acknowledge the work they've done and are doing and support them," she surmised. "These are the farmers who started the cannabis industry. We are the families who could stick through the raids and the fluctuating price per pound.

These farmers need the respect they deserve from the industry, and they need to be able to make a living."

Halle said she'd rather pull tarps over a flowering crop in the rain (something she's done more than she wants to admit) than do the desk work now involved in the red tape of legalization - what the industry has become.

"I love the farming of cannabis, and I need to keep that focus," she concluded. "The paperwork has become a necessary evil. When we see people coming up to Humboldt to farm, they must respect our culture and our morals as a community. The ones in it for the money get run out of town. That's the magic of the north coast cannabis community - it's a natural selection process, not just with the flower."

For more information on Humboldt Seed Company visit, humboldtseedcompany.com

"This industry has kept local shops alive for decades."



Halle Pennington

A beginner's guide to growing AUTOFLOWERS INDOORS

By Dutch Passion Seed Company | dutch-passion.com

Autoflower strains have earned their reputation for being the easiest and fastest way to grow cannabis. They are often recommended to beginner growers due to the wide range of growing conditions they can thrive under. If you're a less experienced/beginner grower or an average grower wanting to achieve better results indoors, read on. Our indoor autoflower grow guide will explain several easy-to-implement top tips from autoflower professionals who will maximize your yields and potency. Autoflowers are easy to grow. And if you choose the best autoflower seeds, you can expect THC levels of 25-30%. Autoflower strains are not only easy to grow, but the best ones also deliver truly spectacular results.

BENEFITS OF GROWING AUTOFLOWERS INDOORS

You can grow an autoflower through harvest using a fixed light cycle - 20 hours of daily light gives great results. Autos may seem a little easier for some than growing photoperiod feminized seeds that require a change of light cycle (to a 12/12 cycle) to initiate bloom. Grow the best auto seeds, and your potency levels will be right up there with the best feminized strains. Your yields may even be higher. And with a fast 11-week auto life cycle, you can be cropping your harvests at a rapid rate.

Top 10 beginners' tips for growing autoflowers indoors

Growing autoflowers indoors is the easiest and fastest way to produce cannabis. It's so easy that even first-time growers have produced top-quality debut crops when growing in a reasonably well-optimized grow room. The following expert tips can help you upgrade from average crops to cannabis-cup winning quality.

Tip 1. Avoid over-watering, waterlogged roots should be avoided!

One of the most frequent mistakes committed by beginner indoor autoflower growers is the tendency to over-water their seedlings and plants. This deprives cannabis roots of the oxygenated environment in which they thrive. A



hygrometer can be helpful since they show the precise soil moisture content. This can help prevent the plants from being over-watered.

Tip 2: Choose the best autoflowering genetics for YOUR needs

Depending on your personal preferences, you can select Sativa, Indica, or hybrid autoflower seeds. Many autoflowers tend to reach around a meter in height but check with the description from your auto seed supplier if, for instance, you have grow room height concerns. Some autos such as Auto Blueberry and Auto Blackberry Kush can be ready to harvest in as little 8-9 weeks after autoflower seed germination. Other strains such as Auto Ultimate, Auto Glueberry, and Auto Desfrán can take 13+ weeks from autoflower seed to harvest but reward the



grower with ultra-heavy harvests. Research your autoflower genetics carefully, selecting only the best seeds for your particular needs and preferences.

THC levels can vary widely from professional seed suppliers to less scrupulous suppliers that just buy/sell seeds with little idea of the genetics or breeding quality. Autoflower THC levels typically vary from 10% to 30%. The most potent autoflower strains benefit from professional breeding and stabilization years.

Tip 3: Start your plants in their final container to save time

Many growers start the autoflower seeds in their final container. Autoflowers have a fixed life cycle, typically around 75 days from seed to harvest. For that reason, cannabis growers often prefer to avoid the delays and hassle associated with re-potting the plants into new containers.

Many top autoflower growers get the best result with large,

aerated grow containers such as air pots or felt grow sacks. These allow the cannabis roots to thrive in a highly oxygenated environment. If you haven't tried growing with air pots or grow pouches, they are highly recommended for indoor autoflower growers.

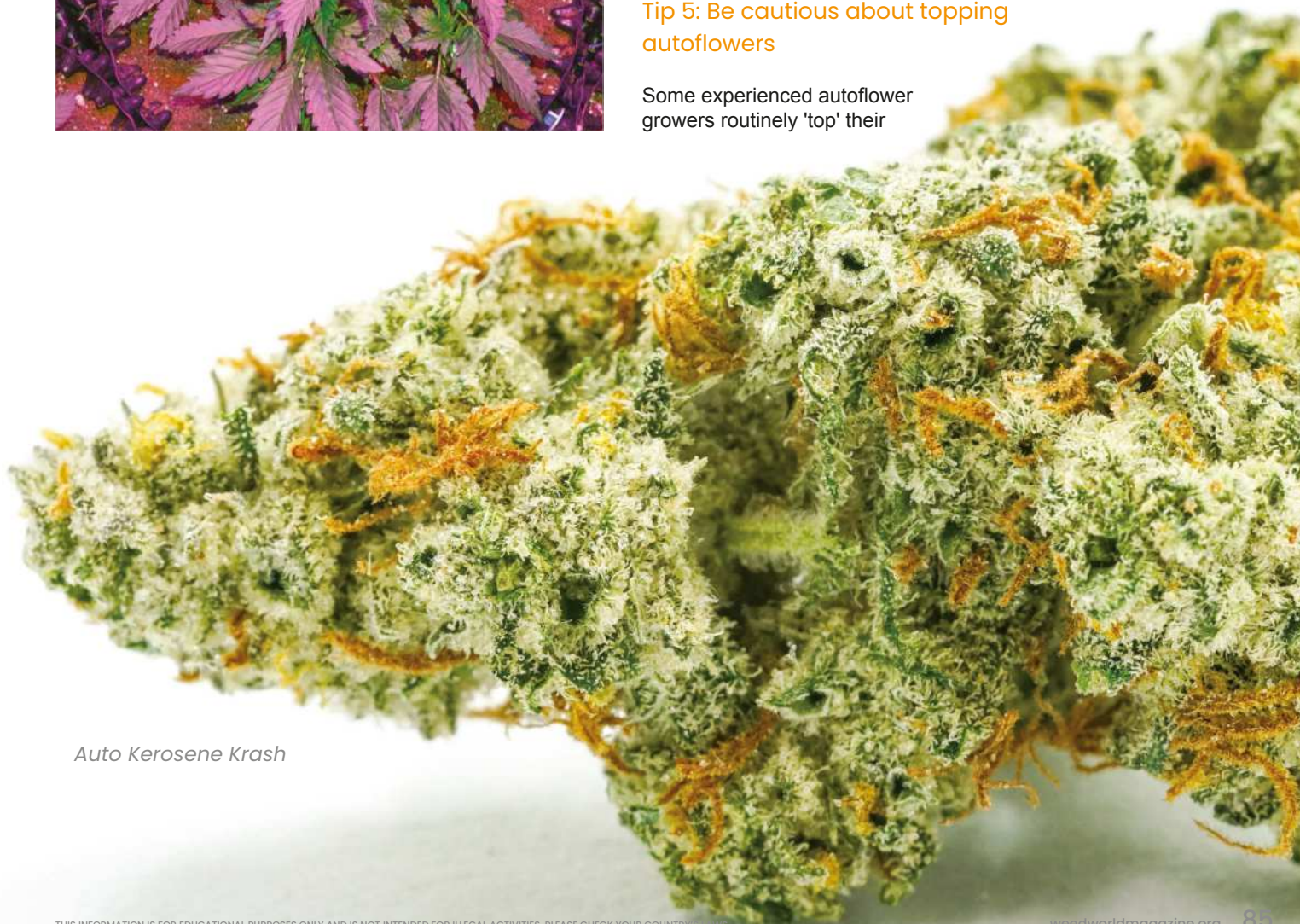


Tip 4: Use the right type of light, LED for the win

Most serious growers know that LED produces superior results to HPS. With LED, you can expect higher cannabinoid and THC levels. You can also expect a superior terpene profile. HPS, with its inherently high levels of plant-stressing heat and sub-optimized light spectrum, may be cheap to buy, but the results simply can't compare with LED-grown cannabis.

Tip 5: Be cautious about topping autoflowers

Some experienced autoflower growers routinely 'top' their



Auto Kerosene Krash

auto, removing the growing tip. Although this can take the auto some time to recover, it can also produce extra-bushy growth. Some growers claim it can improve their yields. However, if you're not that experienced, it can be safer to allow the plant to grow naturally, without topping. It should still deliver great results.



Tip 6: Avoid over feeding and under feeding

One of the most common problems for beginner autoflower growers is getting nutrition right. Underfeeding deprives your plants of essential nutrients/minerals. This limits growth, yield, resin production, and potency. Overfeeding stunts (limits) the growth of your plants. Often you will see burnt, brown leaf tips. That's a sure sign of overfeeding, a signal that your genetics won't reach their potential.



Growing in large aerated 50 liter+ containers of nutrient-rich compost can be one way to avoid these issues. So can the use of slow-release organic nutrients such as BioTabs. With large volumes of soil, e.g., 50-75 liters or more, your autos may not require any additional nutrients. If they do, it's likely to be just a touch of general-purpose bloom nutrients near the end.

Tip 7: Consider supplementing your grow room with UVA and UVB

Many expert/pro growers add UVA and UVB light to supplement their main LED light. Fluorescent light tubes are the best and most cost-effective way to add extra UVA/UVB and can increase both cannabinoid levels and boost the terpene content.



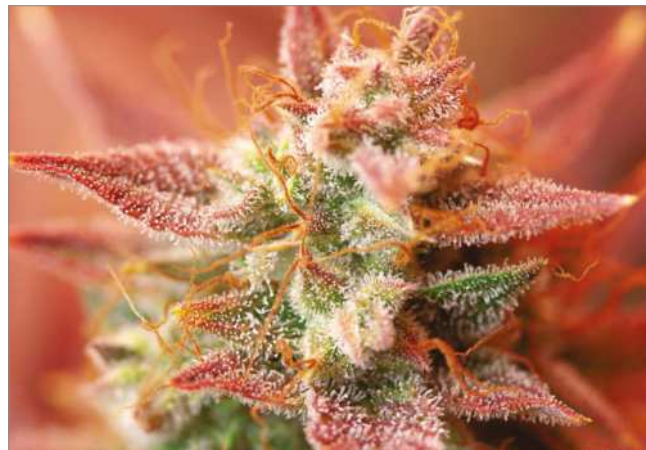
Tip 8: Control pH levels throughout the grow

If you're growing in coco fiber or hydroponics, you will need to monitor your nutrient feeds' pH levels (and perhaps EC, electrical conductivity). Even if key minerals are present, they may not be completely bio-available if the pH is too far from optimum. Pay close attention to the nutrient manufacturers' guidelines and consider using pH adjustment liquids where necessary.

One other important tip for those who rely on pH meters is calibrating them regularly. It's also important to be prepared for the inevitable day when your pH meter will fail. For that reason, many pro-growers keep a spare pH meter.

If you're growing in soil/compost (often, this is a recommended approach for beginner growers), there is an

Nutrient	Ideal pH Level for Absorption
Nitrogen	6.0 – 8.0
Phosphorus	6.5 – 7.5
Potassium	6 – 8
Calcium	6.5 – 8.5
Magnesium	6 – 8.5



element of natural pH buffering. This means that, in general, many soil growers often don't worry about pH.

Tip 9: Choose the right medium for your autoflower

The numerous choices of grow mediums and grow systems may confuse the less experienced grower. Hydroponics may produce some monster plants, but the technicalities involved may be too much for the less experienced grower. Coco fiber may seem a simpler option, but even that can be a little too complicated for beginner growers who may lack the confidence to check the pH and electrical conductivity of the feed solution. That's why many growers feel the simplest cultivation approach is to grow in large, aerated containers of organic nutrient-rich soil (e.g., 30-50+ liter air-pots or felt sacks).

Tip 10: Harvest at the right time

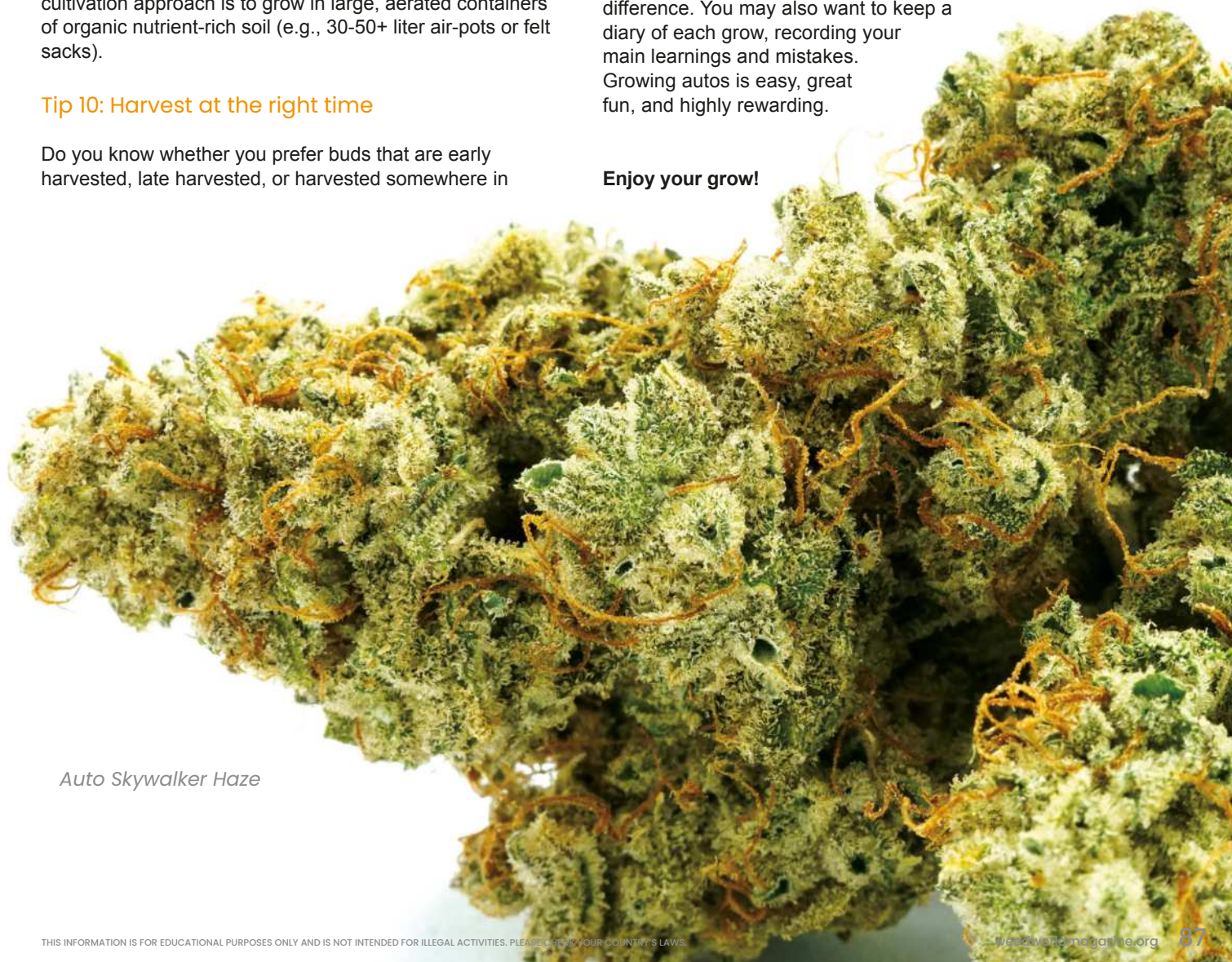
Do you know whether you prefer buds that are early harvested, late harvested, or harvested somewhere in

between? If not, it could be worth finding out. If you grow your own, try evaluating buds harvested at different times over a couple of weeks from the same plant. Many growers find that allowing an extra week or two at the end can produce heavier effects and boost cannabinoid levels and yields. Check trichome appearance, pistil (hair) color, and general bud/plant appearance—harvest at the optimum time for you.

Keep your autoflower grow simple!

Keeping things as simple as possible can minimize the scope for errors and interventions. For less experienced autoflower growers, this can make all the difference. You may also want to keep a diary of each grow, recording your main learnings and mistakes. Growing autos is easy, great fun, and highly rewarding.

Enjoy your grow!



Auto Skywalker Haze

THE **az** to

OF HEALTH COMPLAINTS

Reactive Arthritis

Reactive arthritis is a condition that causes redness and swelling (inflammation) in various joints in the body, especially the knees, feet, toes, hips and ankles.

It usually develops after you've had an infection, particularly a sexually transmitted infection or food poisoning.

In most cases, it clears up within a few months and causes no long-term problems.

Men and women of any age can get it, but it's more common in men, and people aged between 20 and 40.

Symptoms of reactive arthritis

The most common symptom of reactive arthritis is pain, stiffness and swelling in the joints and tendons, most commonly the knees, feet, toes, hips and ankles.

In some people it can also affect the:

- genital tract – causing pain when peeing, or discharge
- causing eye pain, redness, sticky discharge, conjunctivitis and, rarely, inflammation of the eye (iritis).

See an eye specialist or go to A&E as soon as possible if one of your eyes becomes very painful and the vision becomes misty.

Source: nhs.uk

TAKE A LOOK AT THE STRAINS FEATURED ON THE OPPOSITE PAGE. THEY MAY HELP WITH SOME OF THESE SYMPTOMS.



NL5 Haze Mist

Green House Seeds

Seeds available from weedworld.co.uk

♀ TALL, STRONG PLANTS

A sativa with a cerebral effect, full of lights and colors, and a mild body-effect. The high has been described as very complex and enjoyable. Outdoors this cannabis plant will be ready in mid-October above the equator or in May when in the southern hemisphere. Long internodes, long branches, good for ScrOG or LST. Medicinally effective against MS, arthritis, spasms.

Genetics: Kali Mist x Haze x NL #5

20% Indica 80% Sativa

Flowering: 10 Weeks

Height: 125-175cm

Yield per m²: 400-600g

THC: 18-22%

CBD: under 1%



Clinical White CBD

Expert Seeds

Seeds available from weedworld.co.uk

♀ LOW THC - HIGH CBD

This low THC high CBD medical strain is offering fast effective pain-relief. Consumers can also enjoy a mild and energetic euphoric high allowing them to carry on with their daily chores with satisfying comfort. Clinical White is for those searching for a mild psychoactive effect and know that they will not suffer from an anxiety attack brought on by the consumption of a high THC strains.

Genetics: Cannatronic, Dance Hall, White Widow

40% Indica 60% Sativa

Flowering: 8 Weeks

Height: 80-130cm

Yield per m²: 500- 600g

THC: 5%

CBD: 8-15%



Wedding Drake

Dragon Seeds

Seeds available from weedworld.co.uk

♀ PACKS A WALLOP WITH HIGH THC

A mouth-watering indica-dominant hybrid with highly delectable parentage, Wedding Drake is not only delicious, it also packs a wallop with THC content sometimes in excess of 25%. Due to its pinkish-red and violet shades, this strain also goes by Pink Cookies in some circles. A strong painkiller with the ability to treat sciatica, arthritis, fibromyalgia and neurological conditions such as ALS.

Genetics: OG Kush, Durban Poison and Grand Daddy Purple

60% Indica 40% Sativa

Flowering: 9-10 Weeks

Height: 100-180cm

Yield per m²: 600-800g

THC: 20-26%

CBD: 1%



REGULAR



REGULAR

All strains featured here are available from: www.weedworld.co.uk / orders@weedworld.co.uk / 01974 821518

POWER TO THE PEOPLE

with the 25% THC of Gorilla Girl® and the one hit madness of Sweet Amnesia Haze®

A SWEET SEEDS GROW REPORT

Words and pics by Tommy L. Gomez

Cannabis is a multifaceted plant in every way, including when it comes to the effect of its cannabinoids. On the one hand, in the last few years in the cannabis seed market, we observed a boom in CBD-rich strains that usually feature low THC contents and very few psychoactive effects. On the other hand, and to counterbalance this tendency, Sweet Seeds® recently released two super-powerful strains: **GORILLA GIRL®** (Sweet Seeds® variety SWS74) and **SWEET AMNESIA HAZE®** (SWS72).

Between January and May, I decided to try out all of the new Sweet Seeds® CBD-rich strains, leaving no space in my indoor area for these THC-rich strains, which made me make an exception and extend my indoor growing throughout the summer season. Living in southern Europe, where the summer is usually sweltering, with maximum temperatures ranging from 32°C to 42°C in July and August, I was perfectly aware of the difficulties I was about to face. But the desire to try these strains was much stronger than any concern, so I decided to give them a try to see what happens, as in the worst case, I could stop the growth at any time if significant problems occurred, which made me think I had nothing to lose.

By the 4th of June, I sprouted 3 seeds of each strain, leaving 6 plants in an 80x80x160 cm. closet, in a total area of 0,64 m². By the 6th of June, 5 of the 6 seeds germinated. The 6th seed only germinated by the 9th of June, but the plant ended up catching the other 5 in size about 1 week later. They were first placed in 500 ml. containers with Canna Professional soil mixed with 10% organic worm humus. Developing with outstanding vigor during the first 2 weeks, they were transplanted to the final pots of 15 liters at around day 15 from germination, this time with Canna Professional Plus soil mix. I added 5% organic worm humus and 5% Guanokalong bat guano powder. In the first 8 days, I had them under CFL lights, and from the 9th day until harvest, I used 400w High-Pressure Sodium lights.

Anticipating problems with hot temperatures, I decided to give them only 18 days of vegetative. 3 or 4 days



GORILLA GIRL® (SWS74)

after transplanting them to the final pots, I changed the photoperiod to 12/12 so that they would remain short and easier to work with. By doing this, I had them flowering about 24 days after germination with a medium height of 30 cm. Besides the positive features of Sweet Amnesia Haze®, which I will speak about in the last part of this article, a very important characteristic is that this strain is probably the easiest Haze or Amnesia Haze strain I have ever grown. Every Haze strain that I grew before featured a very marked Sativa structure, which means tall plants that stretch much more than an indoor grower would wish for. Sweet Amnesia Haze® has been selected and bred to cut down this inconvenience. The plants show a mainly Sativa structure without the excessive stretch that most Sativas tend to exhibit.

After 16 days of stretching, the plants stopped growing to focus all their energy on the production and development of big flowers. Gorilla Girl®, ended up with the final height of around 60 cm. and Sweet Amnesia Haze® with about 65 cm., making it possible to grow them together indoors with artificial lights. At that point, in the second half of the third week of flowering, I started using BioFlores and BioBoost, both from Canna, once every week. I could have started before, but my soil mix was very rich in nutrients, so I postponed using liquid fertilizers, allowing the plants to



GORILLA GIRL®
- SWS74



The effect of the smoke and vapor is really powerful and mind-blowing. Gorilla Girl® features very high THC levels that can reach between 20% and 25% in optimal grow conditions.



SWEET AMNESIA HAZE® (SWS74)

benefit from the purity and cleanliness of an “only-water” diet. It was mid-July, and luckily the temperatures were a bit lower than usual in that period of the year. In my opinion, that was the key to a successful grow operation, but I am also sure that the vigor and resistance of genetics played a crucial role.

When the higher temperatures finally arrived, by the first week of August, the plants were already in the second half of flowering, with the plant structure wholly defined and all the flowers developed to the point where they only needed to achieve maturity while getting thicker and more compact. About 10 days later, by the 11th of August, the plants seemed to be on their way to full maturity, so I stopped feeding them with liquid fertilizers with the expectation of harvesting them about 12 or 15 days later. At this moment, the maximum outdoor temperatures ranged between 36°C and 42°C, and the power of my RVK extractor was not enough anymore, so I had to use air conditioning while the lights were on, 12 hours every day.

Still, at this point, mid-August, they were already showing some of the aroma characteristics of each of the strains. Sweet Amnesia Haze® released the most pleasant incense aroma after touching its flowers, breaking some resin glands to release the terpenes. Gorilla Girl® released even more intense aromas reminiscent of earth and citrus. Both strains produced flowers completely covered with trichomes, even in the smaller leaves that surround the flowers, making these strains excellent options for the enthusiasts of cannabis extractions. Gorilla

Girl® seems to produce more compact flowers, but Sweet Amnesia Haze® develops flowers of an outstanding caliber, full of dark orange pistils. All the plants matured as real champions.

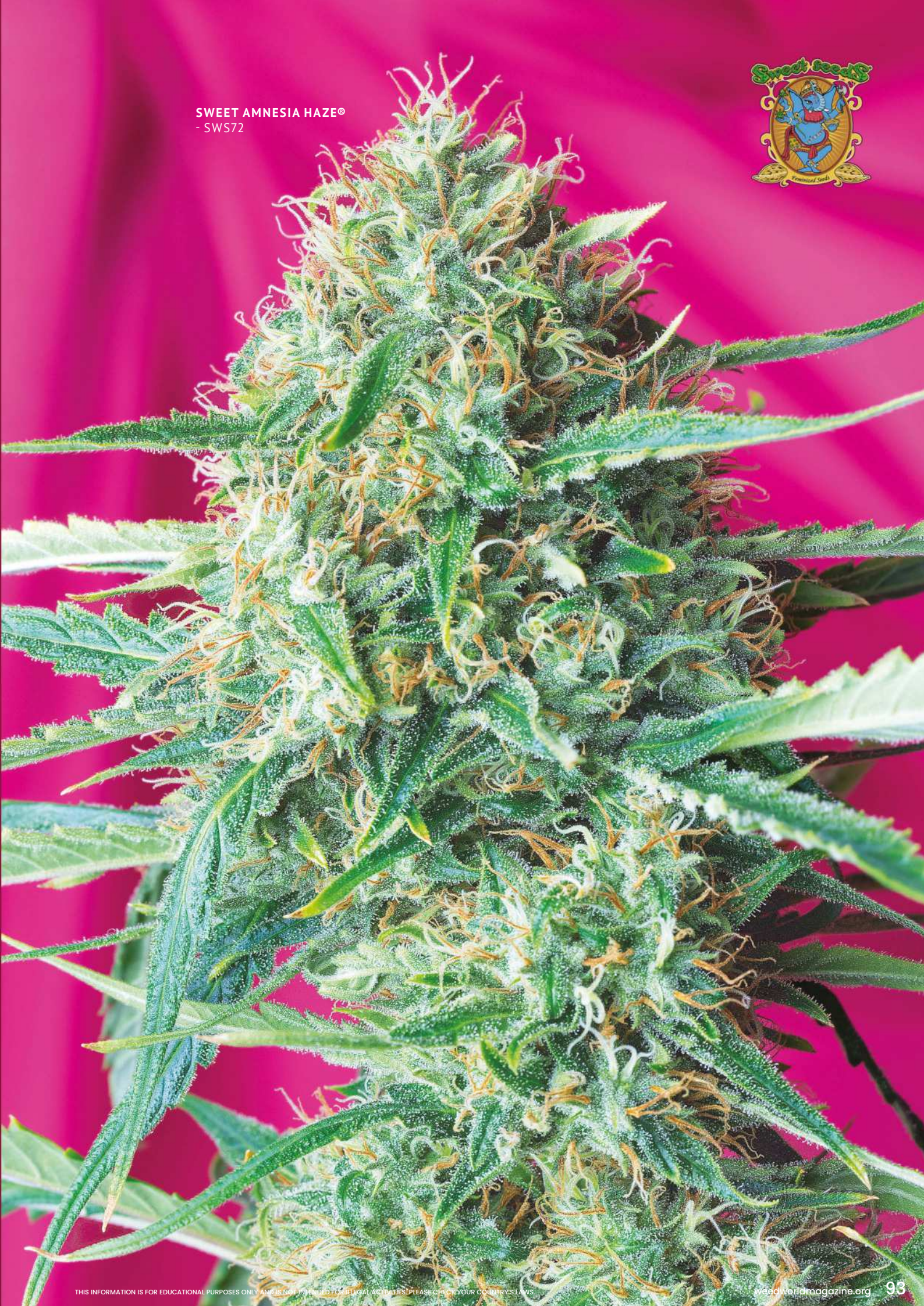
Another great feature of Sweet Amnesia Haze® is its flowering time, as 9 weeks is an impressive number for a mostly Sativa strain. Gorilla Girl® features approximately the same flowering time, so all the plants were harvested with an interval of only 5 days, between day 62 and day 67 of flowering, within the third and fourth week of August. The 3 Gorilla Girl® plants yielded 129 grams (43 grams per plant), and the 3 Sweet Amnesia Haze® plants yielded a total of 141 grams (47 grams per plant). Probably my best indoor harvest ever in this period of the year. The lower small popcorn buds and the manicured frosty leaves allowed for 6 grams of top-shelf hash. As it was a dry extraction, I could then re-use the vegetable remaining's to make cannabutter for my amnesiac chocolate chip scout cookies.

The effect of the smoke and vapor is potent and mind-blowing. Gorilla Girl® features very high THC levels that can reach between 20% and 25% in optimal growing conditions. Some specimens can even exceed these levels. The resin production is copious, and the buds are very compact. This strain is the resulting hybrid from the cross between two of the most famous and powerful genetics coming from the USA: Gorilla Glue and Girl Scout Cookies. The Girl Scout Cookies specimen used for this cross comes from the phenotype known as “Thin Mint.” The plants look like balanced Indica-Sativa hybrids, very productive and vigorous, with long and flexible side branches. Gorilla Girl® features intense taste and aroma, with cypress tones and a touch of wood, complemented with hints of earth and citrus.

On the other hand, Sweet Amnesia Haze® sends us to some sort of amnesiac maze where dizziness is a state of mind that one can surprisingly cope with, taking the most out of the experience, loaded with a sensation of euphoric happiness. This genetic cross between two Amnesia Haze “elite” clones of exceptional quality. The result is mainly Sativa genetic of excellent quality. It is a very high yielder for a Sativa strain, producing loads of compact buds in its long side branches. It is a very easy-to-grow strain suitable for every kind of grower, from beginners to the most experienced. The tastes and aromas of Sweet Amnesia Haze® are incredible, featuring lemon citrus tones, complex background, and an extraordinary touch of cedarwood. In conclusion, I am thrilled with my decision to grow these two strains, even though the period of the year when I grew them. I have 6 jars full of sweet and aromatic flowers with a powerful effect.

SWEETSEEDS.COM OR VISIT OUR FACEBOOK PAGE: [FACEBOOK.COM/PAGES/SWEET-SEEDS](https://www.facebook.com/pages/Sweet-Seeds)

SWEET AMNESIA HAZE®
- SWS72



A New Hope

By Psy-23

Courtesy of the global COVID-19 pandemic, the ever-growing human cost and its impact on the economy (along with our restricted freedoms and the ongoing changes to our everyday lives) the events of the past couple of years are likely to be seen as a key turning point in human history. Regardless of where you happen to find yourself geographically, it has been a difficult time for us all and while there certainly seems to be some sense of a 'light at the end of the tunnel' when it comes to the gradual decline in overall mortality rates we have to accept that the concept of 'living with COVID' is something we probably have to come to terms with sooner rather than later.

At the end of last year, the number of confirmed cases had exceeded 272 million globally with more than half a million new cases being recorded daily and almost 5.5 million deaths being attributed to COVID-19. Vaccines have been developed around the world and a reasonably-large proportion of the world's population have taken up the offer of a vaccine but mutations of the virus have proven to be problematic in terms of their ability to modify the transmissibility or the severity of the virus. Researchers around the world are advising people that it is highly unlikely that this virus will ever disappear and instead will eventually will become endemic in the global population and be treated in the same way that we consider seasonal flu. However, there is always the risk of a new mutation causing issues, as we have already seen with the distinctions between the Alpha and Delta variants and the increase in severity, or the Omicron variant with its higher levels of transmission (and lower severity) which means that there is a need for our current response to COVID-19 to constantly adapt to these mutations.

While many nations are heavily-focused on the roll-out of the numerous vaccines that have been developed at phenomenal speeds in response to the spread of the virus and implementing booster schemes in response to new variants, some researchers are looking into ways that we can expand our repertoire of defense beyond regulations pertaining to mask-wearing, social-distancing and a seemingly-endless barrage of needles and swab testing. Over the past year or so, studies have found links between poor diet and an increased risk of infection along with numerous other possible avenues of exploration that hope to strike a balance between reducing the impact of the virus and impinging on people's lives. Now, a new study, published at the start of the new year, has found that there is a clear link between the application of cannabinoids and a huge reduction in the rate of infection.

In an attempt to break the cycle of the reliance on vaccinations to reduce the transmission of infection in populations, a team of researchers from Oregon State University have been exploring the potential of different compounds to inhibit the spread of COVID-19 and they

have found that certain cannabinoids demonstrate a high level of efficacy in preventing cellular infection. Interestingly, the study found that CBGA and CBDA are able to bind to the spike protein on the virus' surface and thereby block the ability of the virus to bind to its host. Essentially, this means that the virus cannot cause infection and instead will die off

within the host without causing harm. While most vaccines are designed to inform the body of COVID-19's profile so that it can develop an effective immune response in preparation for future infections, this study shows that there is potential for regular doses of some cannabinoids

to create a naturally-occurring barrier to the virus which may prove to be pivotal in terms of a long-term solution to infection and transmission.

Any time a virus enters the body it needs to find a way to enter our cells so that it can start replicating. The Coronaviridae family (of which SARS-CoV-2 is a member) have a number of steps along the route to effective infection and some of the vaccines try to replicate some of these steps in order for the body to develop a suitable response to its presence. This particular Coronavirus strain is an

Any time a virus enters the body it needs to find a way to enter our cells so that it can start replicating.

'enveloped, non-segmented, positive sense RNA virus that is characterized by crown-like spikes on the outer surface' and while there are many stages where intervention may be an effective step, the 'binding of the viral spike protein of SARS-CoV-2 to the human cell surface receptor angiotensin converting enzyme-2 (ACE2) is a critical step during the infection of human cells.' What this means is that anything which acts as an inhibitor to this binding process 'could be used to prevent [...] infection as well as shorten the course of COVID-19 infections by preventing virus particles from infecting human cells.'

During a normal course of infection, once the virus has entered the host organism subunits of the SARS-CoV-2 spike protein bind to the ACE2 receptor in order to initiate the actual process of infection. This process allows the virus to fuse with the host cells and pass through the cellular membrane. Previous studies in virology have found that 'Ligands with high affinity to the receptor binding domain on the S1 protein have the potential to function as entry inhibitors and prevent infection of human cells' which has led to a number of investigations into compounds that may block the interactions between the virus and the receptors in the host.

The research, which was published on the website of the Journal of Natural Products, goes on to confirm that 'natural products are the most successful source of drugs and drug leads in the history of pharmacology' and while it is certainly true that 'combinatorial chemistry currently receives more emphasis for lead discovery by the pharmaceutical industry, nature continues to be a source of unique chemical structure diversity for new drug discovery.' When you consider that the current pharmaceutical industry only really came to fruition over the last century, you realize how short-sighted it is for some people to think that man-made medicines are ever likely to out-perform nature when it comes to fighting disease and creating homeostasis within the human body. Thankfully, science is a very broad field of research and there is a huge wealth of opportunity out there waiting to be discovered. Estimates suggest that 'less than 10% of the world's biodiversity has been evaluated for potential biological activity' meaning that 'many more useful natural lead compounds await discovery.'

When you consider that hemp is becoming increasingly recognized for its myriad properties (or at least re-discovered following the horrendous impact of prohibition) and is now a viable and legal source of CBD in many countries, this research has the potential to have a massive impact on the length and severity of the pandemic. While several cannabinoid ligands were investigated during this study, with cannabidiolic acid (CBDA) and cannabigerolic acid (CBGA) being found to have the highest affinity for the spike proteins in question, there is a distinct possibility that this research only scratches the surface of the potential for cannabis to be a turning point in the fight against infection. From my own experience, I have previously found myself wondering if my daily consumption of cannabis has anything to do with

the fact that I am yet to experience any symptoms of COVID-19 regardless of the fact that I interact with large numbers of people and have been in close proximity to the virus at various points. Whether ingestion of high-dose CBD is necessary for this process to be effective or not is something which is still being investigated as there are limits to the scope of this research currently. In the future it may be possible for extended research to look into the impact of THCA-A on a virus' ability to infect its host but this was not possible to investigate further at this time as 'THCA-A is a controlled substance [and therefore] insufficient quantities were available for determination of binding affinity or antiviral activity.' We can only hope that our governments are really capable of 'following the science', whatever route it may take, so that we can move forward to a much brighter future where cannabis can finally get the recognition it deserves for its almost limitless potential.

Sources: <https://doi.org/10.1021/acs.jnatprod.1c00946>
(Journal of Natural Products
- accessed online)



A BUG'S LIFE

PLANTHOPPERS

By Nebula Haze | growweedeasy.com

Planthoppers can attack and infest cannabis, leaving an unusual cotton-like growth while they suck the life out of your plants! Planthoppers also spread plant diseases, so you want them away from your plants as soon as possible.

Often one of the main symptoms is a white fuzzy growth that is commonly mistaken for mold or white powdery mildew. However, it is a secretion from the planthopper. The bugs themselves can look very different depending on the stage of life.

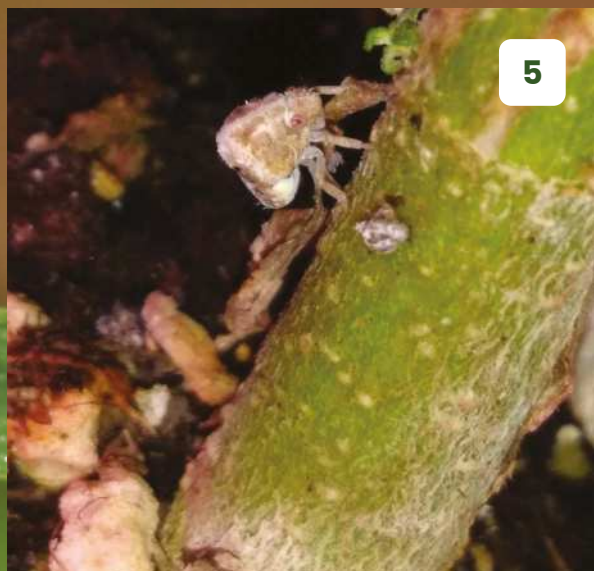


Planthoppers can leave secretions that resemble cotton or fuzzy white mold (see pics 2,3). Planthoppers generally amble but can also jump surprisingly far (which is likely how they got their name).

Their larva also produces white waxy secretions, and this repels water and offers protection (see pic 3).

Their nymphs (baby planthoppers) may have beedy red eyes, and I've heard a grower describe them as looking like a hermit crab (see pic 5).

Adult planthoppers may be more familiar to you (see pics 1,6) There are several different species of planthopper that all look a little different (they're usually green, though some are pink or other colors). Still, the general shape/form is often the same – they typically look like they're trying to mimic a leaf or some other part of a plant.



SOLUTION: HOW TO GET RID OF PLANTHOPPERS ON CANNABIS PLANTS

Planthoppers aren't too serious, but a lot of them will start to suck the life out of your marijuana. You don't want that! If it's just a few bugs, you may not notice any symptoms, but if your plants start getting infested with plant hoppers, you'll notice your plants start turning sickly and yellow.

CHECK REGULARLY

Check regularly for signs of planthoppers, especially when it's dry. The best way to prevent a planthopper infestation (or any bug infestation, really) is to catch them as soon as possible. Planthoppers will suck sap moisture out of cannabis leaves most often when it's dry because they get thirsty, so that's a good time to check. Make sure to look under leaves and all around the plants, as they will try to hide from you, often gliding across the leaf to the other side so you can't see it.

BENEFICIAL INSECTS

Beneficial insects, such as lady beetles, parasitic wasps, ladybugs, and lacewings, may eat large numbers of planthoppers and are welcome guests in the garden. Although you can order ladybugs to release around your plants, the bad part is they do tend to fly away in just a day or two.

Ladybugs are good to have around the garden – they eat planthoppers and other annoying cannabis pests!

PYRETHRIN

Pyrethrin-based insecticides are not very toxic for humans, and therefore they're commonly recommended for vegetable gardens. You will need a mister (also called a "One-Hand Pressure Sprayer") to spray all the leaves evenly since pyrethrin concentrate and water can separate easily. Pyrethrin products break down quickly for just a day or two. The major problem with them is they are very toxic to bees. Although cannabis plants generally don't attract a lot of bees, please use this as a last resort and try to use it right after the sun goes down because bees sleep at night, which lets it start to break down before they wake up.

Use pyrethrin products as the sun goes down to help reduce possible harm to bees.

A popular example is Bonide 857 Pyrethrin Spray Concentrate. Use 3 tablespoons of concentrate per gallon of water and apply carefully with a mister.

INSECTICIDAL SOAPS

Fatty acid salts or insecticidal soaps can be a good choice against planthoppers. They weaken the outer shell of planthoppers but are safe to use on your plants, and they don't leave much of a residue that could kill beneficial bugs in your garden.

Coverage is critical with soaps as it does not stay on your plant for long, so that follow-up applications may be necessary. Although this is considered safe, avoid getting any on your buds!

NEEM OIL

Neem Oil will leave an unpleasant taste/smell on buds when used to treat flowering plants, so again, don't let this stuff get near your buds! There's also some evidence Neem oil may be harmful to humans, so use it with care. That being said, Neem oil is an all-natural remedy that is very effective against many different types of bugs and mold, including planthoppers. You will need a mister (also called a "One-Hand Pressure Sprayer") to spray all the leaves evenly since neem oil and water can separate easily.

SPINOSAD

Spinosad Products (safe & organic) – are organic and utterly harmless to pets, children, and plants. Spinosad products can be used directly to kill planthoppers on contact and should be sprayed liberally anywhere you see planthoppers and especially under the leaves. Although maybe not as strong against pests as some of the more harsh insecticides, it does work, and it's very safe for plants, animals, and humans! Spinosad is an organic insecticide made from the fermentation of a specific soil bacteria (actinomycete *Saccharopolyspora spinosa*) and kills planthoppers via ingestion or contact by affecting the insect's nervous system. Spinosad can be a good choice for organic and outdoor growers because it is very toxic to planthoppers but is less toxic to many beneficial insects, bug predators, and spiders. Note: Most spinosad products are effective for only about 24 hours after being mixed with water, so only mix as much as you will need per application. Anything left over will be a waste.

You will need a mister (also called a "One-Hand Pressure Sprayer") to cover all the leaves evenly when spraying them with spinosad products.

WARNING: NOT FOR COMMERCIAL USE (SEE OPPOSITE PAGE).

FLOATING COVERS

These may not be the best choice for all cannabis growers, but these are very cheap and effective against planthoppers because it physically prevents them from getting to your plants while still letting light into your plants. You can also water your plants through the netting. These are sometimes used to make mini "greenhouses" on the plants, or some grower will just drape them over the plant as they're so light and airy they don't bother the plant.

However, these are much easier to use and are more effective with smaller plants, as it becomes difficult to cover larger plants fully. However, for young plants, these can be great! They also protect your plant from wind and some harsh conditions.

Floating row covers look like thin netting or mesh.

WHAT'S THE DEAL WITH SPINOSAD?

IS IT SAFE TO USE ON GROWING WEED?

Spinosad is a common natural insecticide used to kill a wide range of cannabis pests, from aphids to caterpillars to spider mites. It's considered a broad-spectrum insecticide that is both organic and effective.

But is it safe? Can it cause harm to humans if it's used while growing cannabis plants? What's the deal? Why is it banned in some places but not others? Today you'll discover the answers to all those questions and more.

IMPORTANT FACTS ABOUT SPINOSAD

- Organic and generally considered safe and effective
- Low toxicity to humans, pets, and plants in everyday applications
- BUT not allowed for use by commercial growers in several parts of the US and Canada

WHAT IS SPINOSAD?

Spinosad is an organic insecticide created via fermentation by the soil bacteria *Saccharopolyspora spinosa*. The smell reminds me of wet dirt. It mixes two specific compounds: spinosyn A and spinosyn D. Spinosad kills bugs via ingestion or contact by attacking the insect's nervous system. It can be a good choice for many organic and outdoor growers because it is toxic to many common cannabis pests but is less harmful to the most beneficial insects and spiders. Targeted insects typically die within 2 days of contact or ingestion.

It's used as a foliar spray on your plants. The plants are misted with water that contains Spinosad, which stays effective for about 24 hours. However, residue can still be found on plants for weeks or months after it stops working, especially in an indoor growing environment where plants are never washed off or rained on.

Spinosad is also commonly used as flea protection on dogs and cats since it kills fleas but isn't harmful to humans or if pets eat it. Some people use it to kill lice as it's less toxic than the more common permethrin.

WHAT IS IT EFFECTIVE AGAINST?

Spinosad can help fight infestations from the following common marijuana pests:

- Aphids
- Crickets
- Caterpillars (not as effective as BT Caterpillar Spray, I highly recommend using BT for caterpillars and moths!)
- Grasshoppers
- Leafhoppers
- Leaf Miners
- Spider mites
- Thrips
- Whiteflies

Trade names include Monterey Garden Insect Spray, Bonide, Captain Jack's Dead Bug Brew, Conserve SC, Entrust SC, Elector Baid, Natular, Regard, etc.



WHY IS IT BANNED IN SOME PLACES? IS IT DANGEROUS?

Spinosad has been banned for sales or commercial use in the following places. As far as we know, there is no comprehensive list of places where it's regulated in this way, so we've pieced this list together from talking with growers around the world.

USA – Available but banned for cannabis growers in the following states:

- Michigan
- Montana
- Oklahoma
- Oregon
- Washington

Canada – Not available for purchase, currently under re-evaluation by the Canadian government.

Denmark

...and possibly more! If you're worried, use an alternative product.

Prohibition 3.0

By Simpa | TheSimpalife.com

Thanks to the ongoing global pandemic and the profit-driven pageantry created in its wake, the last few years have been some of the most difficult in modern human history. During these dark days of distraction, deception, and deceit, the cogs and gears of the neo-liberalistic machine have been ferociously working overtime.

The capitalist cash-crazed contraption has now grown so large that it can openly, overtly, and systematically exploit every facet of an international emergency for corporate and personal profit unabated. While the establishment that facilitated the rise of this monstrosity has used this time of great uncertainty and chaos to plunder and profiteer at every turn, consolidate their vast political power, and fatally increase their stranglehold upon humanity.

The violence and vindictive tactics utilized by their cannibalistic corporate contraption have coerced conformity, invalidated individuality, and reshaped the very landscape of our lives in no time at all. This indicates the future the fledgling global cannabis industry now faces if this mutated monetary mechanism remains unchecked.

While the minds and eyes of the world were distracted by domestic issues such as rampant corruption, cronyism, and calamity, the establishment finally turned its attention to the nascent cannabis industry.

Most prominent peripheral industry players such as 'big' tobacco, alcohol, agriculture, energy, construction, pharmaceuticals, and logistics have circulated the industry for decades. However, it is two rather large business deals in 2021, that in my opinion, mark the end of this current era of prohibition 2.0. The Irish pharmaceutical firm Jazz acquired GW Pharmaceutical for \$7 billion in August, and Pfizer bought out Arena for \$6.7 billion in December.

Over the last century, we have moved through several distinct phases in our history with cannabis. The first is the entirety of human history until about the late 17th century and the start of what I am terming here 'the antecedent pre-prohibition era' (the 1700s – 1922), When the British began regulating, restricting, and taxing cannabis in its Indian colonies.

The second era I would term here 'Pre-Prohibition' (1922 -1971) commencing in the early part of the twentieth century with the start of the global criminalization and eradication of cannabis under various international treaties and conventions. Racist and classist hysteria led to the creation of 'Reefer madness' anti-cannabis propaganda and the penning and implementation of the US 'Marihuana tax' in 1934, as well as the UN Single Convention on Narcotic Drugs 1961 and UN Convention on Psychotropic drugs 1971.

The third period I'm calling modern 'Prohibition 1.0' (1971 – 1996) began in the early 1970s as various national laws came into effect worldwide. Bringing the racist, bigoted, and unscientific legacy of the 1961 and 1971 UN Conventions.

'Prohibition 1.5' (1996 – 2012) is marked by the first modern acceptance of raw cannabis as a therapeutic medicine thanks to the passionate and powerful work of the late great Jack Herer, Dennis Peron, and OG Eddy

Lepp, to name but a few. They laid the foundations of compassionate access and medical necessity. At least for a short while, compassion and community trounced capitalism and corporate greed with the passing of prop 215 in California in 1996.

A short time later, Portugal's compassionate response to its overdose crisis in 2001 ushered in a new wave of global decriminalization activism. The establishment deemed two movements far too dangerous to proliferate and hold society. Thus, began the second wave of anti-cannabis hysteria as 'skunk psychosis' scare stories appeared in the British red-top press.

This era of compassion, dispensation, and sympathy was ended by creating the first cannabis 'legalization' models in 2012. When Colorado and Washington voted to become the first US states to 'legalize' the adult use of cannabis. A year later, Uruguay became the first country to 'legalize' cannabis nationally, albeit through a somewhat limited, non-commercial, and state-regulated system.

Their arrival pronounced the beginning of prohibition 2.0 (2012 -2021) and the age of the multi-national corporate conglomerate taking over the cannabis industry. The prohibition 2.0 period is most notably marked by wholesale white label cowboys, vertically integrative business models, speculative merger and acquisition deals, influencers, and celebrity brand endorsements. Many in the legacy market/industry believe that this era epitomizes the establishment's attempts to whitewash, gentrify, and co-opt our culture.

Initially, the legacy market was excited at the prospect of being able to do what they've spent decades doing illegally anyway legally. At first, they'd been told the law would allow for their legitimate participation, afford them legal protections, and guarantee them a place under social equity rules. However, those hopes were soon dashed as the finer details of 'legalization' became more widely known.

In reality, the vast majority simply fell through the ever-widening gaps, grey areas, and legalese loopholes intentionally written into the legislation to reduce and

prevent legacy participation in the newly legal industry. It is disgusting how few individuals who sacrificed their freedom, health, and lives to build this industry are now legally not permitted to operate within it.

While there have been benefits from the creation of prohibition 2.0 policies, such as a reduction in racial disparity

and youth consumption in states that have 'legalized' cannabis.¹ Ultimately, it appears that decriminalization, not legalization, seems to benefit the victims and not the perpetrator most.

Under current decriminalization models, there are no real tax revenue incentives for the authorities to target marginal rule-breakers, such as over possession, petty dealing, or cultivating above arbitrarily imposed limits. Unlike legalization 2.0 models currently employed across the US that heavily rely on the force of police and civil authorities to reduce and control unlawful competition.

The same thing happened in the great white north in 2018, when Canada nationally 'legalized' cannabis. It did so with some rather restrictive and counterintuitive initiatives to control, curtail, and handicap the development of the industry before it had even begun. This resulted in the

Ultimately it appears that decriminalization, not legalization seems to benefit the victims and not the perpetrator most.

effective collapse of its medical program and the continual strengthening of its legacy market.

Canada became the largest economy to 'legalize' created a lot of hype on various stock markets as retail investors and hedge-fund 'FOMO' greatly overinflated the value of the northern market. A few weeks later, the UK 'legalized' prescription cannabis with suspected help from prohibition 2.0 lobbyists.

Similarly, it caused many investors and companies to pile into the UK industry prematurely, only for most to lose a lot of money and market share as savvy investors pumped and dumped. That initial excitement in the stock market from 2018 has mainly quietened down now. Well, minus the odd flurry of heavy investment activity caused by Reddit traders, US federal legalization news, or the latest 'big' industry player announcing that it is entering the industry.

Recent news from California, Oregon, and Colorado also suggests that this current incarnation of 'legalization' under 'Prohibition 2.0' begins to fall apart. In the San Francisco area, the legal industry seeks a temporary cessation of taxation and increasing the raids and policing of unlicensed farms, dispensaries, and compassion groups - 'To help save the industry.'

However, with the authorities tied up raiding 1000's unlicensed grows, there's no one left to protect the licensed farms, legal dispensaries, and industry players from being the victims of violent robberies and burglaries in California.

Last month the Oregon legislature committed \$25million to help 'combat illegal cannabis grows' in the state after Jackson county declared a state of emergency. This was triggered when the Oregon Liquor and Cannabis Commission (OLCC) found that over half the licensed low-THC cannabis ('hemp') farms in the south of the state were 'illegally' growing THC-rich cannabis.²

Although Colorado set a new record for total yearly sales at \$2.19billion in 2020³, the last three months of 2021 saw its overall sales decline 12% year on year.⁴ Given that Croptober has just passed, it's somewhat predictable that sales might dip. However, I assert that new reductions on medical patients will push them along with adult consumers back to the legacy market and good old-fashioned criminalized self-sufficiency.

We have already seen many of the hallmarks of Prohibition 3.0 emerging from the eras that preceded it. Celebrity endorsements will abound as mergers, acquisitions, and brand consolidation will continue to accelerate in this new era. Patented synthetic cannabinoid isomers, analogs, novel extraction processes, and intellectual property and R&D advances are going to play a large part under the 3.0 paradigm too.

Novel biosynthesized, chemically converted cannabinoids and SCRA's will dominate during this time after a niche and nascent sub-industry was inadvertently and consequentially created during the latter part of the 2.0 days. Their importance is evident in the cat and mouse game currently being played out between cannabinoid wholesalers and the US state and federal government regulators.

After passing the 2018 US Farm Bill, they created an exceptional abundance of the bulk CBD isolate. A few companies and chemists discovered various methods of converting and

synthesizing their cheap CBD-rich biomass into other profitable and quasi-legal branch cannabinoids such as Delta-8, Delta-10, or HCC.

This loophole means that cannabinoids extracted from low-THC industrial cannabis cultivars (hemp) that have been converted by an unregulated chemical conversion process and have no research of safety or efficacy are legal in the majority of the US today. While THC, the most widely studied cannabinoid on the planet, remains criminalized and demonized despite decades of research and active consumption confirming its safety.

I fear that the detrimental health risks of these novel synthetics and synthesized cannabinoid isomers and analogs will be used as a justification for the continued criminalization of raw cannabis and THC. Perhaps the proliferation of these unregulated and unknown cannabinoid-based products has led to a resurgence in the 'skunk psychosis' narrative from the establishment's legacy media in the western world.

There have been calls for potency caps in several US states in recent years, including the OG's Washington and Colorado. The re-emergence of this narrative and framing of the debate as a way to protect the young and neurologically vulnerable will be a cornerstone of prohibition 3.0.

This nu-reefer madness comes in many forms, from politicians' complex socio-economic issues blamed on cannabis consumption. To those new pamphlets being handed out in Colorado that warn that "consuming cannabis concentrates can result in psychotic symptoms, uncontrolled and repetitive vomiting, and physical and psychological dependence." However, we know better than to trust official state advice. After all, California believes that cannabis causes cancer.

Alongside issuing these new pamphlets in Colorado, there will now be restrictions on advertising of MMJ to under 21's, despite the fact they can be legally prescribed it under state law. This is, in my opinion, in line with the prohibition 3.0 'belief' that THC is dangerous and should be restricted and replaced with highly profitable, patented, synthetic/synthesized, cannabis-based medications.

Legalization, after all, in its current guise, is arguably more about social control, classism, cultural and literal colonization than it is creating access to one of the safest and most medicinal plants on Earth.

So then, prohibition 3.0 is simply the same established financial and political order that has owned and operated this world for generations exercising its collective fiscal and political might in lieu of physical judicial and legislative aggression. The desired outcome for this cabal is to ensure its continued global commercial, industrial, and political dominance. The protection of its odious opulence and to maintain the status quo, it has fought for decades to forge.



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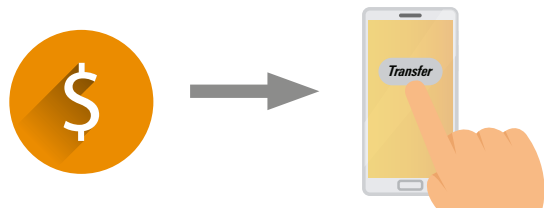
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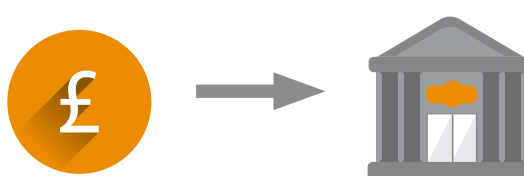


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For more information on payment options, visit weedworld.co.uk/payment-options

the MUSIC REVIEWS



Sideways

Jack Kays & Travis Barker

I'm probably just old and out of touch, but I've never heard of Jack Kays before I stumbled across this song. Kays and Barker make for a great combination and while Kays comes across like a slightly-more angst-ridden version of Avril Lavigne at times the lyrics are infectious enough to get you singing along within a couple of listens. In many ways this is pop-punk by the numbers and reminds me of bands like Sum-41 crossed with Twenty-One Pilots. If you like blistering drums, catchy hooks and jumping around in a crowd of people (if that's even allowed these days) then Sideways brings a fresh slice of punk to the table. Certainly one that will get people into the pit with some windmills to share, Sideways is a fast and frenetic tune about the ill-effects of partying hard and the accompanying video is the kind of thing you can see getting plenty of airplay.



Magic

Nas

Few self-respecting hip-hop heads would argue that Nas isn't one of the greatest rappers of all time. Over the past three decades or so, he has made some of the biggest hits and released a huge body of solo work that has aged incredibly well and some truly stand-out collaborations including the absolutely phenomenal Distant Relatives with Damian Marley. This is music for the mature b-boy and his self-reflection is clear throughout every song. You get a nice blend of the different characters he inhabits through his music he uses his own experiences to shine a light on his perception of how times are changing. Finding out that he decided to surprise-release Magic at the last minute made me sceptical that this might be a bit of a 'filler' album/EP to tide him over to the next big release but it turned out to be some of his finest work yet.



2010

Earl Sweatshirt

While we wait for his new album (which should be out by the time this issue drops) Earl Sweatshirt's 2010 serves as a good taste of what's to come. Although his earlier work displayed a troubled artist who found barriers in everyday life, it's clear that he is developing as both a person and an artist by working through his demons in the hope of finding a brighter future for himself. His self-reflective drawl takes in all manner of inspirations and obstacles that he has faced along the way and his effortless style drifts over the snare-heavy beat like melting butter in a hot pan. While he might have a little way further to travel before he finds what he's looking for, his musical output certainly seems to be a fine motivator and if this is a good taste of what's to come then 2022 could be a great year for Earl Sweatshirt.



the TV / MOVIE REVIEWS



I Believe in Miracles

Rated 12+

When you think of top-flight football clubs around the world, you'd be forgiven for not mentioning Nottingham Forest but there was a time not-too-long-ago that they rose to the upper echelons of British and European football. Following the signing of Brian Clough as the new manager of Leeds United, this fantastic documentary charts his subsequent sacking and his move to the City Ground where he put together a team that will go down in history. Through a mixture of archive footage and interviews with players and pundits, this manages to put together a wonderfully entertaining expose of what was going on behind the fixtures, results and headlines during what will always be seen as the halcyon days for the club, the players and, of course, the unmistakable Brian Clough. I Believe in Miracles is a fascinating, enlightening and fun look into one of the most surprising eras in football history.



Cobra Kai - Season 4

Rated 15+

Proving that there is apparently still some life left in the old dog, the spiritual successor to The Karate Kid trilogy is back with a vengeance with more than just another Crane Kick to help it out. Building on the idea of returning villains in many shapes and sizes, season 4 brings back Terry Silver from Part III to add some extra spice to the grim-faced villainy of John Creese. As you would probably expect, Silver wants to reignite his old alliance so that the newly re-established Cobra Kai dojo can compete in the all-important All-Valley tournament which has been the backbone of the narratives since the first film. While it would have been easy to just hash out this series with the usual back-and-forth between the aging combatants and their plucky students, season 4 actually manages to work really well and the new antagonist really adds to the overall narrative.



Ron's Gone Wrong

Rated PG

Remember when you were a kid and there was some new big fad that everyone else had but you didn't? Well, you'll appreciate how young Barney feels when he's the only kid in his school to not have the latest gadget: The B*Bot. Despite his family's difficult financial situation, his father and grandmother feel sorry for him and go out of their way to get him a B*Bot by any means necessary. Unfortunately, the model they acquire is more than a little defective and this leads to an endless stream of hilarious, over-the-top situations which are a mixture of pure humiliation and unadulterated joy for Barney and his classmates. While the action is bright and colourful enough, there's an interesting exploration of how technology has become entangled with our existence and it's not always for the best. This is a fun family film that hits the mark and manages to bring something for everyone.



the BOOK REVIEWS



Punching the Air

Ibi Zoboi and Yusef Salaam

Over the past few years spoken word and slam poetry has grown in popularity and reached much wider audiences than ever before, while poetic narratives and collections have taken on new life through a bold and brave range of authors finding their own voice. *Punching the Air* is an intriguing and poignant poetic memoir that follows the exploits of a young black man who finds themselves accused and imprisoned for the brutal beating of a white boy. Written in sporadic prose and free-form thought, the novel explores the run-up to the event in question, the trial and the experiences of being incarcerated while the protagonist explores their sense of self and their place in society through a tidal wave of conflicting emotions. As an exploration of race identity in America and the importance of self-expression when it comes to surviving the darkest of times, *Punching the Air* is a riveting read.



When the Sky Falls

Phil Earle

Trying to imagine what it was like to live through the Second World War with the constant threat of bombing runs by enemy planes is not an easy thing to do. For most of us, thankfully, the closest we will get to experiencing something like this is through films or videogames, but this book dramatizes an incredible true story of how a young boy found himself in the midst of a unique situation. After being sent away by his grandmother, the young protagonist finds himself living with a grumpy and stern elderly woman in the midst of the city. Perturbed by this perceived injustice, he digs his heels in and tries to make life difficult for his new guardian before realizing that there is much more to her than meets the eye. This is a breath-taking exploration of finding hope in the darkest of times and learning to think of something greater than yourself.



Ready Player Two

Ernest Cline

Picking up straight after the events of the first book, *Ready Player Two* launches the plucky protagonist, Wade, back into an Easter Egg hunt of epic proportions as he tries to figure out what's best for humanity and the fate of the OASIS. Drawing interesting parallels with current developments in technology, Cline's sequel explores the next level of immersive experiences using neural interfaces to make the virtual world more real and interactive than ever. I have to admit that I wasn't too sure about this book when I first started it (I'm a big fan of the first book – not so much the film adaptation) because it almost felt like the narrative was unnecessarily rushed initially. As the story developed, however, I was caught up in the whirlwind pace and came to understand why it was written in this manner I enjoyed it a lot more and raced through to the conclusion.



the GAME REVIEWS



Murdered: Soul Suspect

Rated 18+ • XB/PS/PC

After seeing yourself die in the opening scene, *Murdered: Soul Suspect* thrusts you into the recently-deceased shoes of an ex-con-turned-cop-turned-ghost so that you can solve your own murder. What follows is an intriguing and impressive range of game mechanics that blend your human abilities with supernatural powers that are developed as you progress through the storyline. Imagine *LA Noire* crossed with a horror game and you'll be some way to understanding how this plays out, but there are plenty of tricks up its sleeve (such as possessing people to eavesdrop on conversations or taking control of a cat to explore areas you can't otherwise reach). While this has been out for a few years now, I only just got around to playing it and it's actually a brilliant little title which is well deserving of your attention (especially since it's cheap as chips to pick up).



Halo: Infinite

Rated 16+ • XB

Having been delayed for more than a year following some criticism of its first campaign reveal, the Master Chief is finally back to settle some scores in the first *Halo* game to be built on the new engine. While the series has always been known for its sense of scale, the previous games have only given players limited freedom to explore but *Halo: Infinite* ushers in a new era with a massive map and the freedom to explore at will. In some ways this feels like and RPG-lite version of one of the best shooters in history and the changes to the campaign mode work tremendously well. While the shooting has been refined to perfection and the graphics look absolutely phenomenal, the sheer sense of freedom and the opportunities to approach encounters in seemingly endless ways means that this close to being the absolute pinnacle of the series. Completely unmissable.



Lake

Rated 18 • XB/PS/PC/Switch

If you like taking things at a slower pace then you could do a lot worse than playing *Lake*. After learning of her father's death, your protagonist returns to her home town to wrap up all the loose ends and finds herself stepping into her father's shoes as the local deliver driver. While you drive around completing missions you'll encounter countless members of the population and learn more about your father and the people who knew him. Although it initially seems like there is little variation to the gameplay, you gradually start to realise that this is a game filled with opportunities to carve out your own narrative. What will you do when you have said goodbye to your father? Will you stay in the town and make a new life for yourself or return to your old life in the city, change careers for good or maybe fall in love?

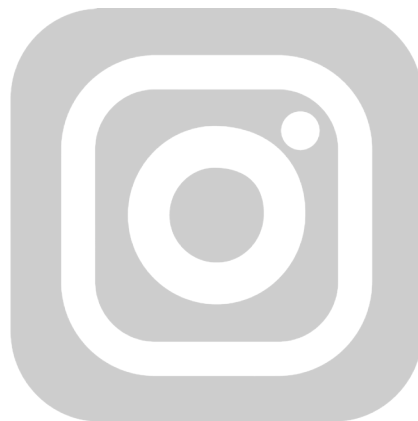


About @officialraregenetics

Rare Genetic is a licensed cultivation facility known for growing top-shelf cannabis. Founded in 2009 and based in Los Angeles, California, our company focuses on cultivating indoor cannabis and producing exotic strains.

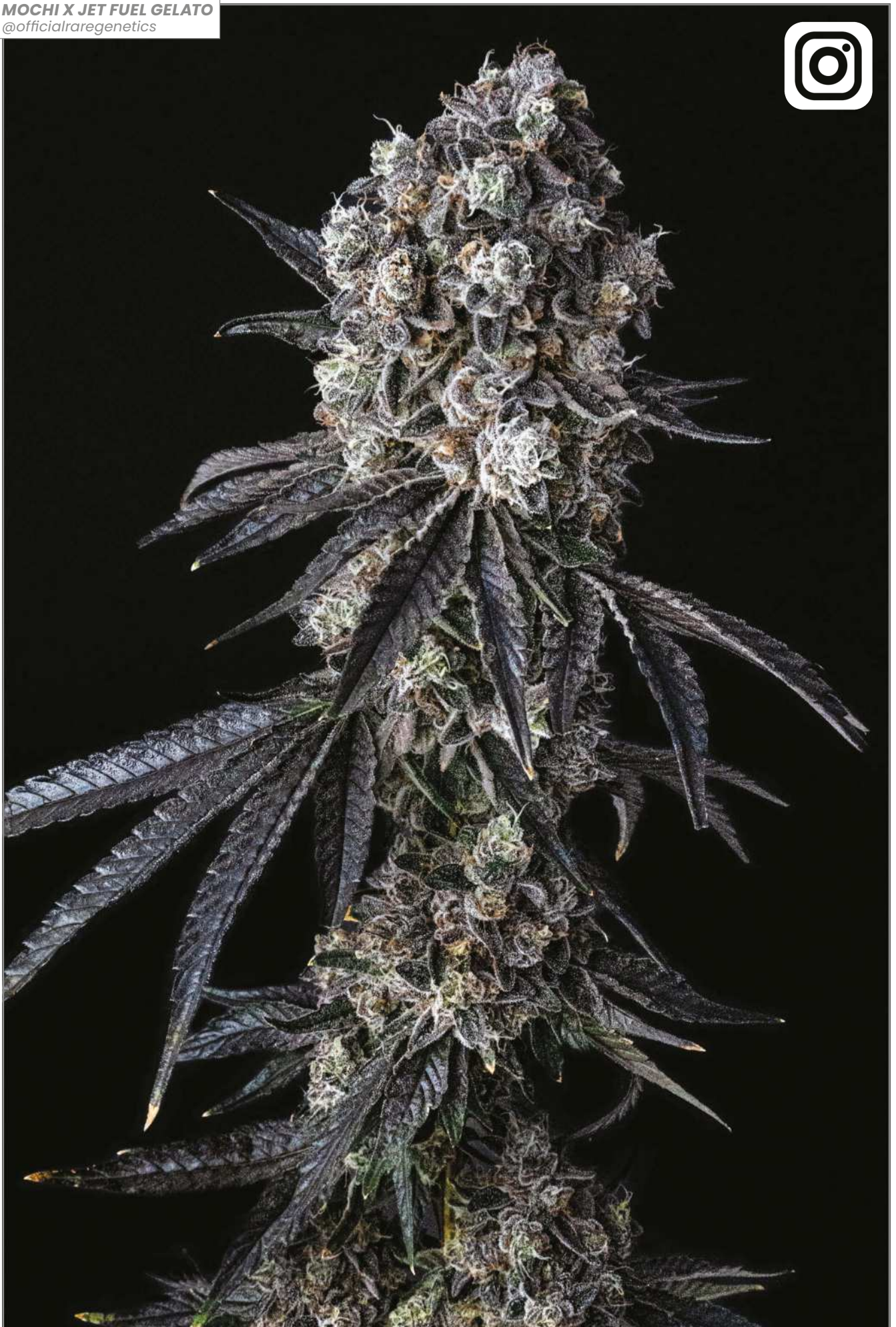
Our best genetics are FI, Fuji Apple, Cold Snap, and Trufflez. We have new strains coming soon, including Forzas, Gelonade, Lemon Jet Fuel, and many more. We have an SOP that has been proven to be successful. It's not just about the SOP though, but how well and consistently the team can run it. We pride ourselves on consistency and attention to detail. Our goal is to put out some of the best products in the market.

We expect to see tremendous growth in 2022 as we recently acquired more space to expand our facility by an additional 70,000 square feet. With our new expansion, we look forward to growing more premium strains and having the best genetics in the industry.



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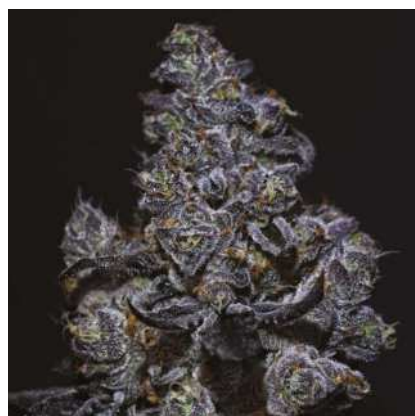






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HELPLINES & CONTACTS

RELEASE UK – OFFER DRUGS COUNSELING, DRUG EXPERT WITNESS, HELP & ADVICE AND LEGAL OUTREACH

For all information on their services call 020 7324 2989 or email ask@release.org.uk
Our drug expert witness service is delivered by our highly knowledgeable and accredited (Expert Witness Institute) drugs team that have provided authoritative independent reports and testimony for civil, criminal and military cases in England, Ireland, Scotland & Wales for over 10 years. The team are exceptionally experienced in dealing with most drugs whether prescribed or controlled/illicit (as defined by the Misuse of Drugs Act 1971) and are regularly instructed to comment upon: Valuation - street prices and wholesale; Drug prevalence; Common methods of drug use and administration; Cannabis cultivation and yield (including hydroponics); Possession with intent to supply; Bulk purchase for personal use (scale of economy); Importation and distribution; Dialogue interpretation and sequestration cases; Proceeds of Crime Act, to name but few areas. Contact: drugsexpert@release.org.uk
The counseling service is lead by Gary Sutton who is a member of the British Association for Counseling and Psychotherapy (BACP) and has an MSc in Therapeutic Counseling. Gary has many years of experience of working with people with drug, alcohol and emotional problems, and has delivered counseling in a variety of settings including drug treatment centers and prisons.

If you require further information, or would like details on commissioning the service then please contact Keith Edwards on keith@release.org.uk, or alternatively telephone 020 7324 2979.

Our legal surgery program currently operates in ten drug treatment centers across eight London boroughs, seeing over 1800 clients a year. People who use drugs problematically and engaging with the treatment centre can access a legal adviser for advice and assistance on a variety of issues, including: Housing; Homelessness; Welfare benefits (including representation at tribunals) Debt; Complaints against the police; Criminal injuries compensation claims

TALK TO FRANK If you want to talk, you can call FRANK, 24 hours a day, 365 days a year. (Free confidential drugs advice, they will signpost you to whatever service you may need). 0300 123 6600, text 82111, email: frank@talktofrank.com.

NORML/UK is a non-partisan, non-profit organization working for more research into the benefits of the uses of the hemp plant for all purposes. We aim to provide a support network to those seeking the normalization of cannabis consumption, and to influence a positive transformation of laws enabling responsible medical, spiritual, recreational and industrial uses in the UK.

Our five main objectives are outlined in our Cannabis Charter: Freedom, Evidence, Respect, Regulation and Medicinal cannabis. On our web site you will find information relating to medicinal and recreational cannabis.

We are seeking the reform of cannabis laws throughout the world. Hashish has been sold in coffeeshops in The Netherlands for forty years. Uruguay recently become the first country to officially legalize cannabis, and two States in the USA have also legalized, with more expected to follow suit.

If you would like to be part of the UK's leading campaign to reform the laws, then you can join online and become a member of NORML UK. www.norml-uk.org

General Inquiries: norml@norml.org
The NORML Foundation: foundation@norml.org
Media Requests: media@norml.org
Web: <http://norml.org/>
Legal Questions: legal@norml.org
Women's Outreach: sabrina@norml.org

NORML USA NORML and the NORML Foundation, 1100 H Street, NW, Suite 830, Washington, DC 20005
Phone: (202) 483-5500 • Fax: (202) 483-0057

SUPPORT & SELF-HELP GROUPS

The following websites and organisations offer advice on giving up or reducing cannabis use.
UNITED KINGDOM A web-site providing a free downloadable pdf document entitled A Guide to Cutting Down and Stopping Cannabis Use. www.knowcannabis.org.uk/images/Klargeguide.pdf

UNITED STATES AMERICA A web-site offering downloadable guides to quitting cannabis use. www.cannabisaddicts.com/ • http://stopsmokingcannabis.org/Home_Page.html

AUSTRALIA A web-site providing a free downloadable pdf document entitled Making Changes: A Self-Help Package for People Thinking about Changing their Lifestyles. www.gsaha.nsw.gov.au/UserFiles • www.edas.org.au/docs/cannabis.pdf

WORD OF WARNING

UK Laws. Please Observe... As responsible journalists, we at Weed World now feel we should extend our information on the re-classification of cannabis – and include the most up-to-date information from the Home Office.

GENERAL LEGISLATIVE POSITION AND EXISTING LICENSING ARRANGEMENTS:
Cannabis is a Class B controlled drug under Part II, Schedule 2, of the Misuse of Drugs Act 1971 (MDA 1971). It is also listed in Schedule 1 to the Misuse of Drugs Regulations 2001

(MDR 2001) and designated under the Misuse of Drugs (Designation) (England, Wales and Scotland) Order 2015 (2015 Order). As such, it is unlawful to possess, supply, produce, import or export this drug except under a Home Office licence. It is also an offence to cultivate any plant of the genus Cannabis except under a Home Office licence.

"CANNABIS-BASED PRODUCTS FOR MEDICINAL USE IN HUMANS" ("CBPM") - a defined category of cannabis, cannabis resin, cannabinol and cannabinol derivatives - are listed in Schedule 2 to the MDR 2001 and removed from designation under the 2015 Order. Home Office licensing requirements relating to these products are outlined below. The explanatory memorandum to the legislative changes can be found at:

<http://www.legislation.gov.uk/ukxi/2018/1055/memorandum/contents>

CANNABIDIOL (CBD) AND ITS CONTROL STATUS: CBD as an isolated substance, in its pure form, would not be controlled under the MDA 1971 / MDR 2001.

If a CBD 'product' contained any controlled cannabinoids, unintentionally or otherwise (e.g., THC or CBD-V), then it is highly likely that the product would be controlled. It is our understanding that it is very difficult to isolate pure CBD, and in our experience many products in fact do not fully disclose their contents or provide a full spectrum analysis at an appropriate level of sensitivity to accurately and consistently determine their true content or control status. Against this background, the presumption has to be one of caution - that is, that a CBD containing product would be controlled under the MDA 1971 / MDR 2001 as a result of its other cannabinoid content.

In addition to any issues associated with controlled substance content, cannabis/ cannabis extract products may also need to satisfy other regulatory requirements if clinical/medical benefits are claimed. In this respect, companies may wish to contact the MHRA for their view on whether the cannabis/ cannabis extract products are additionally subject to their licensing regime and control.

THC-A AND ITS CONTROL STATUS: THC-A as an isolated substance, in its pure form, would not be controlled under the MDA 1971 / MDR 2001. However, it is understood that THC-A readily degrades both naturally, and with a catalyst or environmental change (e.g. ingestion) to THC which is a Schedule 1 controlled cannabinoid.

Against this background, the presumption is similarly one of caution, namely that THC-A will become a controlled substance by virtue of its degradation.

Information from the Home Office - Misuse of Drugs act 1971: Class B - include

Amphetamines, Cannabis, Methylphenidate; (Ritalin), Pholcodine; Possession - Up to five years in prison or an unlimited fine or both; Dealing/Supply - Up to 14 years in prison or an unlimited fine or both

CANNABIS IS DESIGNATED AS CONTROLLED SUBSTANCES UNDER THE MISUSE OF DRUGS ACT 1971, AND USING THE DRUG IS ILLEGAL IN UK. The Misuse of Drugs Act states that it is an offence to: possess a controlled substance unlawfully; possess a controlled substance with intent to supply it supply or offer to supply a controlled drug (even if it is given away for free); allow a house, flat or office to be used by people taking drugs.

To enforce this law the police have special powers to stop, detain and search people under the 'reasonable suspicion' that they are in possession of a controlled drug.

LEGAL ADVICE

BEING HARASSED? Then contact the Solicitors from Civil Liberties and Human Rights...

The rights guaranteed to suspects, defendants, offenders and prisoners in our justice system are fundamental human rights that protect us all from governmental abuse of power. And the solicitors from BSB Law are committed to upholding these rights. Their solicitors are experienced in challenging the decisions of Courts, Local Authorities and Public Bodies, and they are currently involved in cases challenging the legality of decisions to prosecute parents under the Education Act for failing to ensure their children attend school and the scope of Anti-Social Behaviour Orders. For more information about their work in this area – you need James Skelsey. Their consultant Richard Parry is an experienced Civil Liberties campaigner and legal representative for the London Defence Monitoring Group. Parry has represented many protestors arrested as a result of the May Day and other political demonstrations. He is an expert in defending cases related to the supply, possession and importation of drugs. Contact Richard, if you are faced with prosecution.

Profile: Richard Parry of the BSB Law Firm... Richard began his career in 1987 working on the PC Blakelock murder trial at the Central Criminal Court, qualifying in 1994 as a solicitor - gaining higher rights of audience in 2006. He also has experience in the Coroner's Court, Courts Martial and before the Parole Board. Richard has been a Duty Solicitor since 1996 and furthermore Richard has a particular interest and expertise in drug and protest cases. He was involved in the leading medical cannabis case R v Taylor, Quayle & others whose petition to the House of Lords being rejected is now pending before the European Court of Human Rights. Add to that his involvement in numerous importation and supplying cases and is increasingly involved in Confiscation hearings under the Proceeds of Crime Act and other legislation. He has been interviewed on TV and Radio on the drugs issue, and spoken at Trafalgar Square. Richard was involved in defending many of the May Day protestors from 1999 onwards, in particular the only riot case from 1999, R v MacHale (2000). He currently assists 2 of the 5 British victims of police brutality from the G8 Summit in Genoa in 2001; the 2 trials there are expected to conclude in 2007. If you wish to contact Richard please e-mail him at richardvp@bsblaw.co.uk

BSB Law Solicitors undertake all work regularly conducted in the criminal courts at all levels and their practice encompasses all aspects of dishonesty, violence, and sexual offences and drugs offences. Worth noting – they also offer expertise in: Internet Crime - Explosives and Firearms - Road Traffic Matters - Licensing - Obscene Publications - Local Authority - Prosecutions - Environmental Crime.

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5-7 Euston Road, Kings Cross, London, NW1 2SA. DX 37905 Kings Cross.
Tel: 020 7837 3456 (24 hours) • Fax: 020 7837 9696
info@bsblaw.co.uk • www.bsblaw.co.uk

CANNABIS LAWYER CANADA

Paul Lewin
Tel. (416) 499-7945 • email: paullewin@bellnet.ca • www.LewinSagara.ca

The inclusion of the above organizations are only suggestions, and Weed World cannot be held responsible for content of external websites.

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Other (Retail/Entertainment)

Mendo Dope
mendodopemusic.com



Near Dark
neardark.de

Near Dark

The Simpa Life
thesimpalife.com



Weedlive
dlive.tv/weedlive



Weed World Magazine
weedworldmagazine.org

WEED WORLD

Whole Plant Extract (WPE)
wholeplantextract.co.uk



Why Not? Shop
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Attitude Seedbank
theattitudeseedbank.com



Amsterdam Seeds Center
amsterdamseedcenter.com



Barney's Farm
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Big Head Seeds
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CBD+ Buds
cbdplusbuds.com



Dutch Passion
dutch-passion.com



Emerald Triangle Seeds
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Kush Cannabis Seeds
kushcannabisseeds.com



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medicannseeds.com



Ministry of Cannabis
ministryofcannabis.com



Sunbelt Seeds
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(BLUE POWER X GRINGO LOCO)

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(MENDO BREATH X GRINGO LOCO)

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(MCI X GRINGO LOCO)

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